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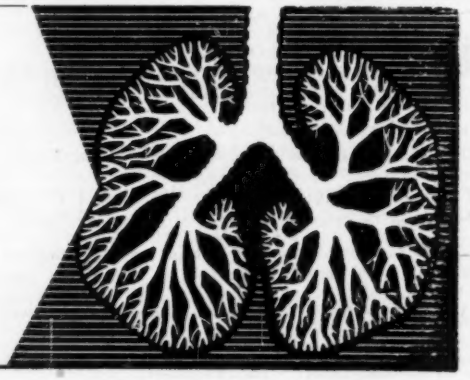

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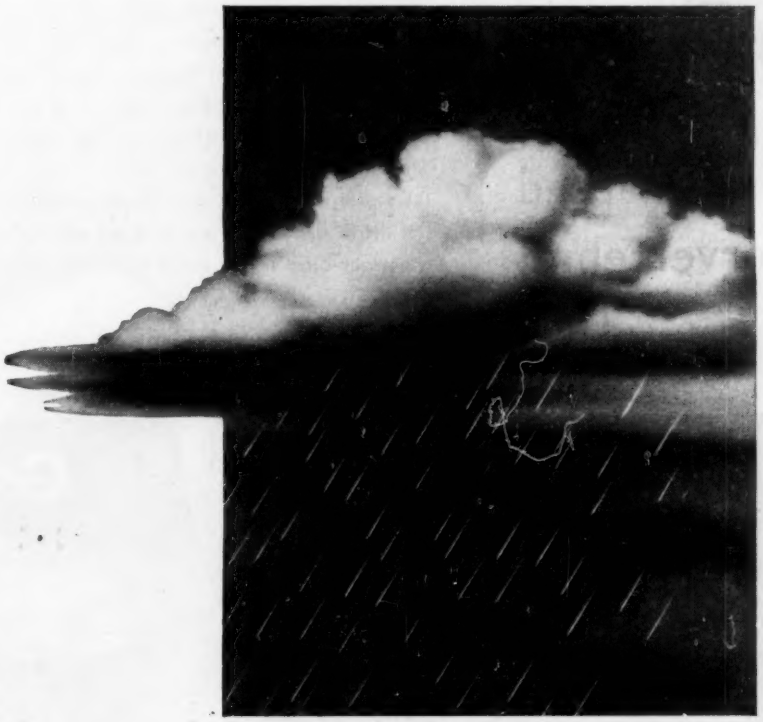

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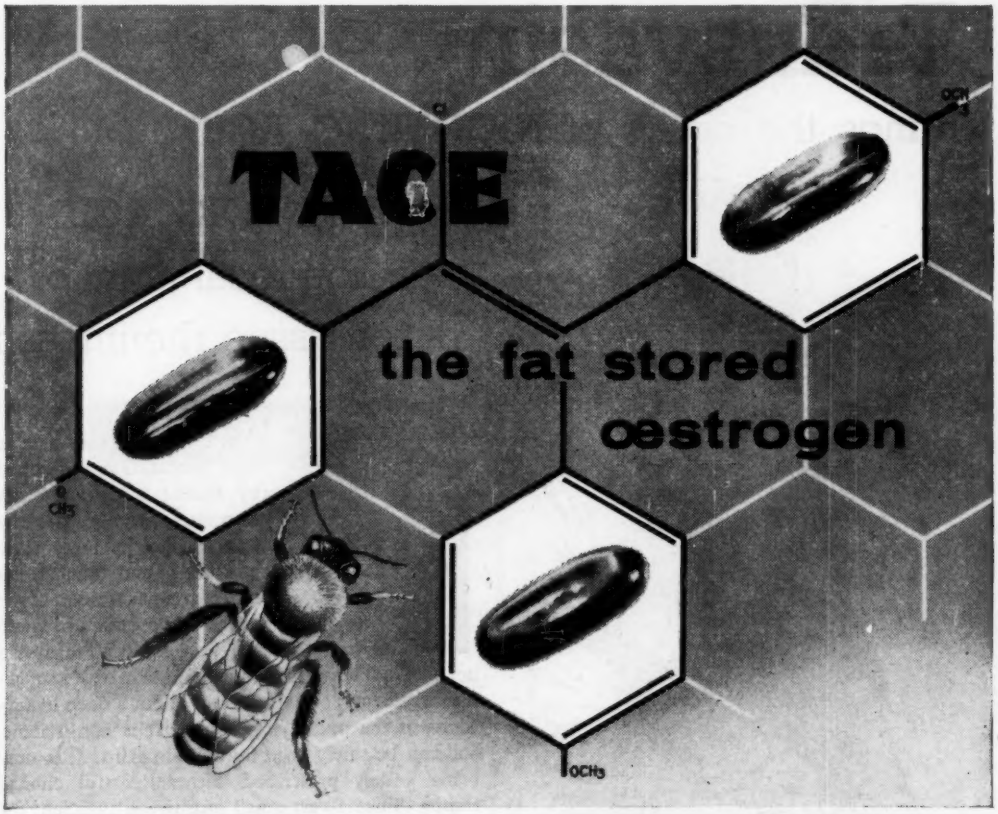

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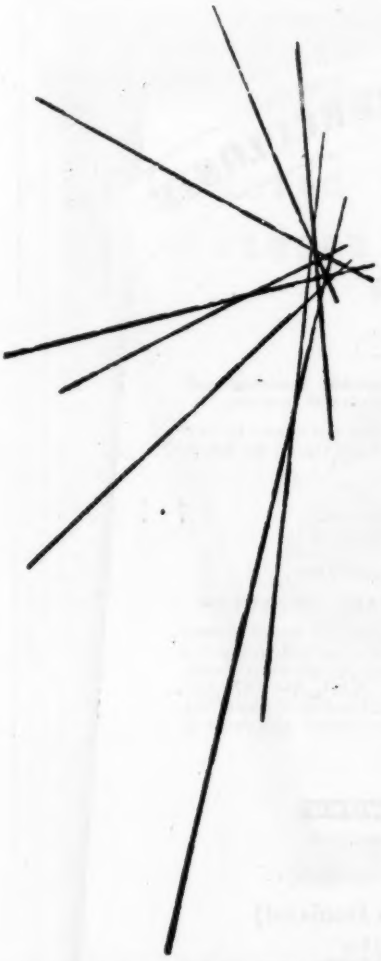

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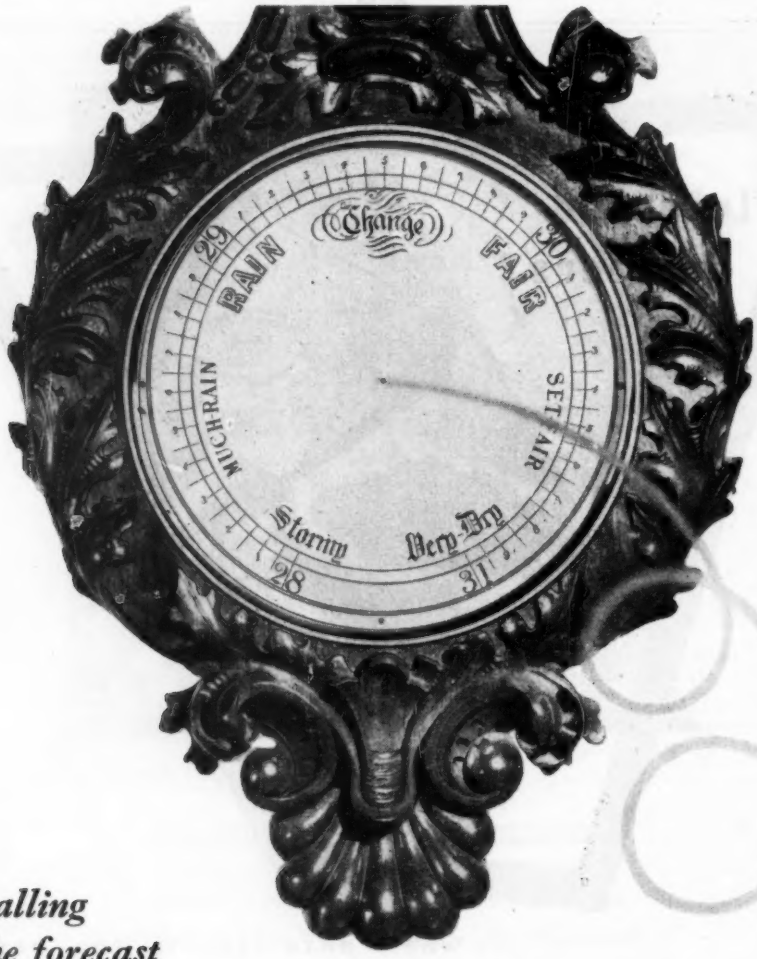

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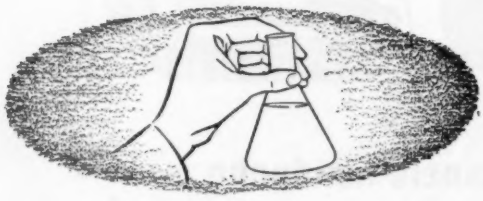

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THE FINAL EXAMINATION AS AN INSTRUMENT OF MEDICAL EDUCATION

DAVID H. PATEY
M.S. Lond., F.R.C.S.

DIRECTOR OF SURGICAL STUDIES AND CHAIRMAN, SURGICAL EDUCATION SUBCOMMITTEE, MIDDLESEX HOSPITAL MEDICAL SCHOOL, LONDON

IN all educational systems there must be tests, the primary function of which is to appraise students, but which also provide guidance to teachers. The particular value of a comprehensive final test, as compared with a series of sub-tests on the American model, is that on the one hand it leaves the student freer to educate himself during the course, and on the other provides a stimulus for a final synthesis. The character and content of the medical curriculum are at the present time under active review, but the event which in fact determines whether the student becomes a doctor is the final examination, which in increasing degree as it approaches exercises the decisive influence on his pattern of learning. The final examination is thus an important instrument, for good or for ill, of medical education.

Examiners can in the last resort act in only one of two ways. They decide on the fitness to pass of a candidate and they may certify him as worthy of honours. The former is by far the more important in medicine, and in the many universities which have no final medical honours list the only way. The first question that arises is what the ideal pass and failure rate should be. The qualitative answer is easier than the quantitative. An ideal final pass examination should pass all candidates of adequate intelligence who have satisfactorily completed an adequate course of study. A decade or so ago, the function of the final medical examination might have been defined differently as the provision of a filter to exclude candidates still unfitted to be let loose on the public as doctors. But with the coming of the compulsory clinical year, this definition has lost much of its relevance.

If we accept the qualitative definition given above, the next question is its achievement in practice. Theoretically those intellectually unsuited to become doctors should have been filtered off by preliminary selection or intermediate examination. The question should thus become largely one of the correct failure-rate necessary to act as a stimulus to work. A high failure-rate in a pass examination is not necessarily a good thing for standards. If many good candidates who have worked well fail, the shadow of the examination is thrown back further into the clinical course, and the student from early on concentrates less on being educated and more on the tricks of examinations.

Using as a guide the final examinations in other faculties which have stiff intermediate examinations, there are many examples to show that a failure-rate of 10% can be an adequate stimulus to work. Personal experience as a final examiner in one of the English universities where the failure-rate has traditionally been of this order would confirm this conclusion. If this is accepted, final medical examinations which consistently have a much higher failure-rate than 10% should justify this higher rate, and, as I have noted, the argument of a higher standard should be accepted with caution. In some cases, it may be that the examination is a second-choice qualifying examination, attracting a high proportion of its candidates from those who have failed at their first choice. In such cases, a higher failure-rate is logical. But when, as often happens, two groups of candidates from the same medical school go up to different universities, and in the one have a failure-rate of 10% and in the other of 30% or more, the difference is not likely to be in the candidates or in their education but rather in the examinations themselves.

Before discussing technical features of examinations which may appreciably influence failure-rates without regard to the quality of the candidates, it will be convenient to consider the second way in which examiners can act—i.e., by the granting of honours. In many faculties, and in medicine itself in its preclinical subjects, the main stimulus to the candidate may not be the fear of failure but the spur of honours. In final medical examinations, though there are exceptions, this form of stimulus is largely ignored. Oxford and Cambridge have no honours list, and in London the proportion of distinctions is so minute that it exercises no influence on the examination as a whole. The failure of an outstanding student to obtain a distinction excites no comment in his parent medical school. Final medical examiners in their former preoccupation with eliminating the unfit appear deliberately to have allowed an important educational tool to rust. Now that the function of the examination has changed, there seems no adequate reason for not making use of it again. To do so, the honours list should constitute a sufficiently high proportion of those who pass to stimulate candidates to make the attempt to be included. What this proportion should be will, like the failure-rate, vary with circumstances, but perhaps 25% would be a reasonable average figure. On the question whether honours should be awarded on the examination as a whole or on its separate parts, the strong argument for the former is that the examination is meant to test how well a candidate has learned the general principles of medicine, whether his teachers be physicians, surgeons, or gynæcologists, and not the specialties of physic, surgery, or gynæcology.

Returning to the technical features of examinations which may influence the pass-failure rate, the most important are the number of candidates, the method of marking, the character of the paper, and the rigidity of the rules. These will be considered in order.

The *number of candidates* has a profound influence on the character of an examination. If the number is small, it is easy to consider each candidate as an individual. If it is large, the individual becomes submerged in an impersonal arithmetical sum. The solution to the problem presented by large numbers is a difficult one, but might be achieved by a simple alteration in the character of the examination. The common custom is for the candidate to be examined in each subsection of each subject by a different pair of examiners marking independently. If, instead of this, examiners always conducted the final vivas of those candidates whose papers they had corrected, and knowing all their intermediate marks, they would know also whether they were dealing with a possible failure or a possible honours candidate, and could from the beginning conduct their interview accordingly. Each candidate would thus have a personal individual assessment irrespective of numbers.

The *method of marking* is similar for most final medical examinations, though the actual numbers and symbols used may vary. There is a pass mark for each subsection of the examination, and a candidate may obtain one or two marks above or below it. In other words, if the pass mark is represented by P, the standard formula of the range of marking is P–2 to P+2. In practice, candidates easily sort themselves out into three groups, average, above average, and below average. The majority of the candidates are average and are given the pass

mark P, the minority falling into two approximately equal groups of the above average and the below average. With the standard close method of marking, more candidates are marked P+1 or P-1 than P+2 or P-2. The marks thus tend to form a roughly symmetrical curve about the pass mark. They do not represent absolute values but merely normal variability about a mean which is largely determined by the candidates themselves. A moderate variation in the quality of candidates presenting at different examinations does not necessarily result in a corresponding variation in the pass-rate, but merely in the curve as a whole shifting in one or other direction.

This system seems to result in a failure-rate of about 25%. If a rate of nearer 10% is to be achieved, it follows that the system of marking needs loading in favour of the candidate. This can be done in two ways. In the first place, the range can be altered to P-2 to P+3. Secondly, greater hesitation could be shown in giving a candidate a minus mark than a plus mark. A candidate should rarely be failed by an isolated P-2 mark if his other marks are at variance with this figure. A true P-2 candidate nearly always fails all along the line.

The *character of the paper* in final examinations has shown a tendency to alteration in a number of directions in recent years. A moderate choice of questions is becoming commoner—a practical recognition of the fact that there are bound to be gaps in the knowledge of every student. Even that hardy survival—the compulsory anatomy question—has disappeared in some universities. Less emphasis is now laid on details and more on general principles. This more liberal trend has the additional advantage that it allows the examiners to set questions which they may not necessarily expect to be widely answered, but which focus attention on subjects worthy of study. In the present connection, the point which arises is that in examinations which still adhere to the tradition of all questions being compulsory, a higher failure-rate is to be expected.

Finally, there is the problem of the *rigidity of the rules* of the examination, particularly the rule that a candidate who fails in the clinical part of the examination cannot pass. All will agree that everyone aspiring to become a doctor should possess certain basic clinical skills. But the assumption that the clinical examination is an infallible test of these skills is not necessarily true. Most examiners will be able to recall examples of its fallibility. The most striking example in my experience was a candidate who, in two parts of the final examination had been recommended for distinctions, was considered for distinctions in a third, but was in danger of failing because of a very bad mark in the clinical of the fourth part, in which he had otherwise done moderately well. Fortunately common sense eventually prevailed. A similar Nelsonian attitude will probably continue to be a necessary part of the mental equipment of examiners in the uncertain science of examining.

CONCLUSION

Articles on medical education are characteristically strong in generalities but weak on details. I have therefore in this article not hesitated to indicate some detailed ways in which in my opinion the final examination might be made into a better instrument of medical education. Many who agree in principle will naturally differ on these details. The recent report of the General Medical Council has raised the possibility of greater freedom for experiment in the medical curriculum. If this new experimental approach is to bear fruit, examinations also must be the object of similar experimental studies, and that is the real point of this article.

A COMPARATIVE TRIAL OF OBJECTIVE PAPERS AND ESSAY PAPERS IN PATHOLOGY AND BACTERIOLOGY CLASS EXAMINATIONS

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AN objective examination paper may be defined as one in which there are a large number of questions each of which can be answered by a "yes" or a "no" or, better, by selecting the correct one or more of a number of given answers. It thus involves no description on the part of the candidate, and no judgment in marking, the candidate's answers simply being marked as right or wrong. Stimulated in part by Sinclair (1953), many people have become interested in the possibility of using objective papers in medical examinations in this country. Bull (1956), however, is as far as we know the only author to report experience of their use here: the considerable correspondence which followed his paper revealed a great diversity of opinion on their use, but little in the way of attempts to support opinions by detailed studies of examination results. Even in the U.S.A., where the objective paper has been used extensively, the literature available is not large (Cowles and Hubbard 1954). Therefore we think it worth reporting our findings.

Two important requirements of a good examination paper are validity and reliability. A valid examination is one which measures what the examiner wishes to measure; reliability refers to the accuracy and repeatability of such measurement. An examination possessing a high degree of validity must, of necessity, be reliable, but reliability alone does not imply validity, for it may be the wrong thing which is being measured in a reliable manner. For example, we do not choose medical students by the size of their feet, and no amount of accuracy in that measurement would help a selection committee.

Present-day doubts in the minds of many medical teachers in this country as to the value of examination papers, particularly of the objective or multiple-choice type, refer mainly to the validity of the results. In other words, they question whether such examinations accurately assess the student's knowledge and understanding of a particular subject or predict his suitability for the practice of medicine. To determine the validity of examinations is hardly possible without correlating the results with a careful assessment of the students' postgraduate career. Our own method of determining validity has, of necessity, been much less ambitious. With the coöperation of our bacteriological colleagues, we have conducted class examinations consisting of both objective and essay papers in pathology and bacteriology, and have tested the validity of the marks obtained by determining their correlation with the results of the subsequent combined professional examination in pathology and bacteriology. We regard the main function of class examinations to be the provision of a measure of the students' progress during the course of instruction, and we therefore consider that a good class examination should provide an accurate prediction of the results to be expected in the professional examination. Obviously, such prediction cannot be completely accurate, for many students do not progress at a uniform rate during the

course: furthermore even the professional examination cannot provide a completely accurate assessment of the students' knowledge and attainments. We should add, however, that the professional examination represents the expenditure of a considerable amount of students' and examiners' time: it sums the opinions of at least six examiners, mostly of great experience, using three forms of examination (essay paper, practical, and oral), and it certainly provides a mark sufficiently accurate for the assessment of the validity of our class examinations.

The validity of objective and essay-type class examinations has been determined by comparing their results with those of the professional examination: their reliability has been determined by comparing results of one objective class examination with another, and one essay class examination with another.

Material

Our investigation was carried out upon two successive classes of medical students taking the course of pathology and bacteriology at the Western Infirmary, Glasgow, one in 1955–56, the other in 1956–57. Excluding the few absentees from one or other class examination we have two groups of 86 and 67 students respectively, all of whom were taking the course for the first time.

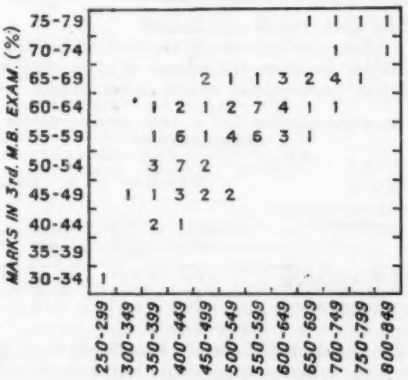

Fig. 1—Scatter-diagram showing the relation between the total marks obtained in all pathology and bacteriology class examinations, and the marks obtained by the same students in the professional examination at the end of the course, for the year 1955–56. Correlation coefficient 0·78.

This and the following four diagrams are intended chiefly as illustrations, at various levels of correlation, of the figures from which the correlation coefficients of table I have been calculated.

The course of instruction extends over four terms of approximately ten weeks: class examinations are held at the end of each of the first three terms and the professional examination at the end of the fourth term. Both objective and essay-type questions were included in the second and third class examinations in 1955–56, and in all three class examinations in 1956–57.

Class Examinations

Before 1955 written examinations consisted of three essay questions, two in pathology and one in bacteriology, and lasted sixty minutes. In 1955 the form of the examination was changed for reasons stated below, one of the pathology essay questions being replaced by an objective paper containing 50 pathology and 25 bacteriology questions, to be answered in thirty minutes. Sixty minutes were allowed for the remaining two essay questions, one in each subject. The exact form of the objective paper will be described later: in essence, most of the 75 items required the student to select the best of 5 given answers to a given question.

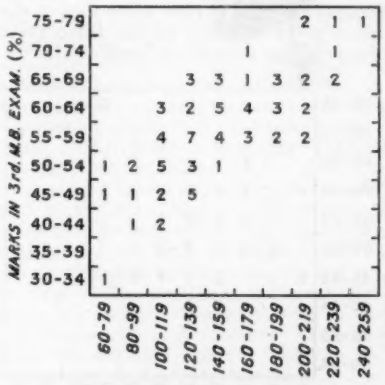

Fig. 2—Corresponding scatter-diagram for all objective papers (1955–56). Correlation coefficient 0·71.

All answers to a particular essay question were marked by a single examiner on a percentage scale, and to a standard similar to that applied in professional examinations in this country, 75% being regarded as a distinction and 50–55% as barely adequate. Each correctly answered objective item earned one mark, and the totals were corrected to a percentage to bring them into line with the essay marks: for the purpose of the analysis which follows, however, the original objective marks, out of a possible 75, have been retained.

Results

Presentation of Results

The marks of various pairs of examinations which it was intended to compare were used to make grouped scatter diagrams of the type shown in figs. 1–4. One can learn a good deal from mere inspection of such diagrams, but it is clearly more satisfactory to have a measure of the degree of the relationship between the two sets of marks. Mathematically the most satisfactory way of doing this is the calculation of the correlation coefficient. This has been the basic technique of most attempts to study the efficiency of examinations and examiners—see, for example, Cast (1940), Finlayson (1951), and Cowles and Hubbard (1954). A correlation coefficient of 1·0 would mean that one could predict the result of the second examination with 100% accuracy from that of the first, a coefficient of 0 would mean a total absence of predictive value.

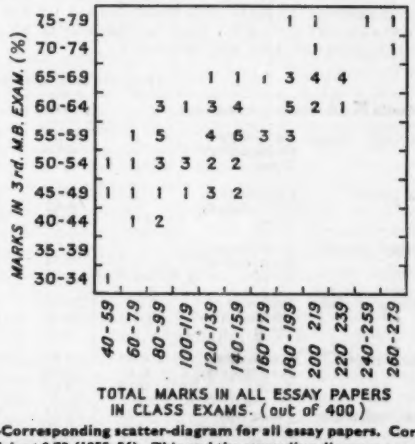

Fig. 3—Corresponding scatter-diagram for all essay papers. Correlation coefficient 0·73 (1955–56). This and the preceding diagram are virtually identical.

It is of course essential to have some idea of the degree of importance to be attached to the difference between various levels of the correlation coefficient. It would,

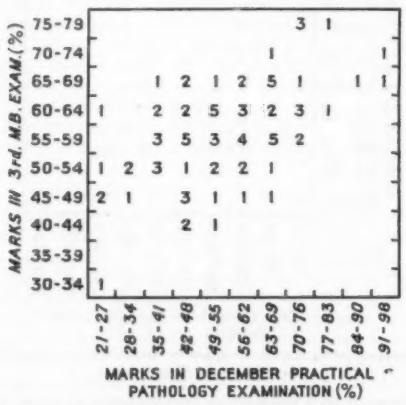

Fig. 4—Corresponding scatter-diagram for a single pathology practical examination (December, 1955). Correlation coefficient 0·56. The greater scatter is obvious on inspection.

however, over-complicate our presentation to give a precise figure for the significance of the difference between every pair of coefficients, and it will perhaps suffice for our purpose to indicate that, with groups of the size of the two with which we are dealing, a "significant" difference (i.e., probability 1 : 20) between two correlation coefficients both in the region of 0·7 is of the order of 0·1, and with pairs of coefficients higher than this, the difference necessary for significance falls steeply. With pairs of coefficients below 0·7 a larger difference is necessary for significance, and a coefficient of 0·22 just differs significantly from zero. (The mathematical methods we have used are those of Bernstein and Weatherall [1952].)

Correlation with M.B. Results

Table I gives the most important of these. They do not include all the single class examinations or combinations which might have been given, but are sufficiently representative of all those for which we have figures.

The first and most important result is the demonstration that the figures for the *totals* of each kind of paper —objective (0·71 in 1955–56), essays (0·73), and practical (0·73)—do not differ significantly, and this applies also to the 1956–57 results. The correlation of individual (e.g., December) objective, essay, and practical examination results with M.B. results are naturally more erratic, indicating that no one examination provides as accurate assessment as the sum of the results of several examinations. Here again, however, it is seen from table I that the individual objective examinations correlate at least as well as the essay examinations and better than the practical examinations. We have included in this table some figures from the year 1954–55, when no objective papers were set, if only to show that our interest in the objective paper has not led to any decline in the standard of essay marking.

TABLE I—COEFFICIENT OF CORRELATION OF MARKS IN VARIOUS CLASS EXAMINATIONS WITH THE TOTAL MARKS OF THE SAME STUDENTS IN THE 3RD M.B., CH.B. PROFESSIONAL EXAMINATION IN PATHOLOGY AND BACTERIOLOGY

—		1954–55	1955–56	1956–57
Total marks in all class examinations		..	0·78	0·78
All objective papers	Pathology	..	0·69	0·70
	Bacteriology	..	0·68	0·72
	Total	..	0·71	0·71
All essay papers	Pathology	..	0·73	0·71
	Bacteriology	..	0·62	0·55
	Total	0·62	0·73	0·72
All practical papers	Pathology	..	0·70	0·63
	Bacteriology	..	0·53	0·53
	Total	..	0·73	0·68
Dec. objective paper	Pathology	..	0·65	0·62
	Bacteriology	..	0·52	0·68
	Total	..	0·72	0·68
Dec. essay paper	Pathology	0·38	0·62	0·74
	Bacteriology	0·45	0·50	0·44
	Total	0·53	0·68	0·67
Dec. practical paper	Pathology	0·28	0·56	0·50
	Bacteriology	0·40	0·29	0·41
	Total	0·42	0·51	0·52

Reliability

The correlation between individual objective examinations and between individual essay examinations is illustrated in table II. The performance of students on the objective paper remains more nearly constant from examination to examination than does the performance in essays—i.e., the objective paper under these circumstances gives a more *reliable* figure.

Correlation with Preclinical Results

It is a reasonable criticism of our results that the degree of correlation between the results of class examinations and of the professional examination might have no relation to the students' specific knowledge of or aptitude for the two subjects concerned, but reflects only the unspecialised ability of the student to pass examinations. The best available measure of this unspecialised ability seemed to be performance in the six subjects of the two preclinical professional examinations sat by the student before he reached us. The dean of the medical faculty has been good enough to supply us with figures for all our students which gives the best available measure of this. These figures represent the mean performance (expressed as a percentage) in all six subjects at the first time of sitting, with appropriate adjustments in some subjects in the cases of those few students who did not take the course in the normal way. It will be seen (fig. 5) that correlation of these figures with the 3rd M.B. results is only moderate (correlation coefficient 0·49 : for 1956–57 the figure was 0·50). Since it is possible by adding all types of class examination together (fig. 1) to attain a coefficient of 0·78, it is clear that we have achieved a better correlation than would be expected by measuring merely a generalised ability to pass examinations.

TABLE II—CORRELATION OF MARKS IN SUCCESSIVE CLASS EXAMINATIONS

Pairs of examinations correlated	Objective		Essays	
	Path. only	Path. and bact.	Path. only	Path. and bact.
1955–56 Dec. and March ..	0·65	0·77	0·53	0·63
1956–57 June and Dec. ..	0·51	0·64	0·46	0·61
1956–57 Dec. and March ..	0·70	0·81	0·51	0·58

Language Difficulties and Objective Papers

Some students whose native language is not English are handicapped in writing essays by the difficulties of adequate expression. It therefore seemed possible that they would perform rather better in the objective papers, in which ability to write English is no help. Fig. 6 affords no support for this view. The average ratio of essay paper performance to objective paper performance over the whole year has been indicated by the regression line. Foreign-language students are scattered about this line with no sign of a trend above or below it. (Women students equally show no significant preference for either type of paper.)

The difficulties of foreign-language students with essay-writing we believe to be real enough, but this result can probably be explained largely by the tendency of the examiner to allow—perhaps even over-compensate sometimes—for these difficulties. In any case, linguistic difficulties seem in most cases to be at least as important a barrier to learning as to expression.

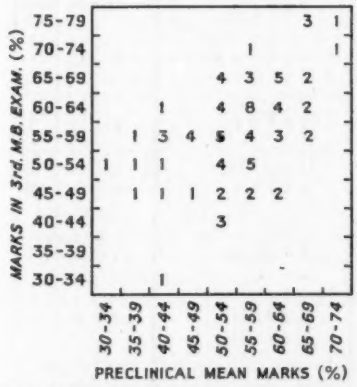

Fig. 5—Scatter-diagram showing the relation between the average mark in all preclinical professional examinations, and the marks obtained by the same students in the 3rd M.B. examination 1955–56. Correlation coefficient 0·49.

Reliability of Essay-marking by Different Examiners

The great variability in the marks given by different examiners, or even by the same examiner at different times (Hartog and Rhodes 1936), is notorious. Table III shows that our own department is no exception to this. The pathology essay set in April, 1957 ("Discuss the production of disease of the heart as a consequence of disease of the lung"), was marked with considerable care by one of us (examiner A). The scripts (unmarked and anonymous) of the six best essays and six from the middle of the list were then handed to six other members of the department, all of lecturer grade or above and with some experience of examining. It will be seen that though there is a broad agreement in most cases, there are very great discrepancies in detail. Opinion as to which is the best essay is strikingly divided, and there are two essays which are given failure marks by one examiner and distinction (no. 5) or near-distinction (no. 8) marks by another. An attempt at an ideal answer by examiner A, included incognito with the others, has not been given 100% by any of his colleagues and in one case has not been given the top mark.

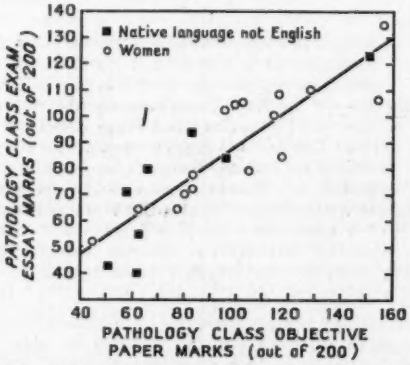
Native language not English
Women
PATHOLOGY CLASS EXAM. ESSAY MARKS (out of 200)
PATHOLOGY CLASS OBJECTIVE PAPER MARKS (out of 200)

Fig. 6—Relation between performance in essay papers and in objective papers.

The line drawn is the regression line (calculated for essay marks on objective marks) for the whole group of 1955–56 students. Plotting individual marks shows that neither students whose native language is not English nor women show any consistent preference for either type of paper.

The Objective Papers

The final form of our paper is partly the result of trial and error on our own account, partly the result of discussion with others who have set similar papers, and partly derived from literature on the subject; besides the sources already quoted, we have referred particularly to the pamphlet of the U.S. National Board of Medical Examiners (1954) and to the very valuable text of Micheels and Karnes (1950).

The format we have adopted for the question sheet is indicated in fig. 7 (section I). It achieves reasonable clarity without wasting space. We find 75 questions fit comfortably into four foolscap sheets.

There are two possible views on the use of a separate answer sheet. The candidate is almost certainly best served if he has no separate answer sheet to contend with, simply indicating his chosen answer by some sign made direct on the question paper. Marking is, however, much easier on a separate sheet, and analysis very laborious without it. (We leave out of consideration all question of machine marking, which of course demands a separate answer sheet.) Moreover as the question sheet

TABLE III—MARKS GIVEN BY DIFFERENT EXAMINERS TO THE SAME ESSAY

Candidate	Examiner						
	A	B	C	D	E	F	G
1	72*	68*	65	66	80D*	62	70*
2	72*	65	75D	66	75D	62	65
3	65	68*	65	79D*	65	67	68
4	65	57	70	65	70	57	65
5	64	47F	80D*	63	60	57	70*
6	63	58	65	62	70	62	60
7	52	47F	40F	53	45F	70	50
8	51	57	45F	55	45F	72*	50
9	51	55	50	59	40F	52	55
10	50	55	50	63	40F	60	60
11	47F	55	40F	59	55	42F	55
12	44F	45F	45F	44F	50	35F	35F
Examiner A	—	90	90	85	75	77	75

* Top mark.
D Distinction mark.
F Failure mark.

is untouched, it remains possible to reissue papers (or single sheets from papers. We employ a separate sheet, but try to help the candidate in two ways:

(*a*) The answer sheet is divided into columns each of which exactly corresponds to a page of the question sheet. By laying the question sheet over the answer sheet with its edge against the corresponding column, the answer blank for each question is brought immediately to the right of the question itself, in the position they occupy in fig. 7 (section II).

(*b*) The key letters for each question are different, so that it is nearly impossible to mistake one answer blank for another. This small innovation of our own we find valuable both in answering and in correcting: where, as usual, all questions bear the same key letters—usually A, B, C, D, E—confusion between successive questions is easy. (Never ask the candidate to *write* the correct key letter himself in the answer blank. Some candidates demonstrate great skill in producing ambiguous letter forms, but most are defeated by the instruction to ring one only of a row of letters.)

There are many ingenious variants on the simple multiple-choice question. But, given a question to which a straight answer is possible, it is surprising how rarely (especially with a little practice) it proves impossible to turn it into the basic form. In long examination papers it may be advantageous to introduce variety of form, but we believe that, especially in a short paper, and with students only moderately familiar with objective papers in general, over-ingenious variations of the question lay-out test chiefly agility of mind. We find the two types of question illustrated sufficient, and rarely use any other. Of these the grouped question illustrated by questions

Question Sheet	Corresponding column of answer sheet	Answer "Analysis" Correct Answer	Score of top 20 students	Score of bottom 20 students
1. The commonest tumour of the tongue is:- A.Chordoma B.Myosarcoma C.Rodent ulcer D.Squamous carcinoma E.Teratoma	1. A B C D E	D	20	18
2. Ascites in liver cirrhosis is due to:- F.Lowered serum albumin G.Portal hypertension H.Sodium retention I.Serosal irritation J.None of these factors K.More than one of these factors	2. F G H I J K	K	-1	-1
3. In an intussusception of the intestine which layers become strangulated? L.Inner only M.Inner and middle N.Outer and inner O.Middle and outer P.Outer only	3. L M N O P	M	15	7
4. Which one of the following is NOT a well-recognised feature or complication of silicosis? Q.Diminished exercise tolerance R.Empyema S.Nodular pulmonary fibrosis T.Right heart failure U.Pulmonary tuberculosis	4. Q R S T U	R	16	12
5. Which one is NOT a complication of mitral stenosis? V.Auricular fibrillation W.Left ventricular hypertrophy X.Pulmonary C.V.C. Y.Thrombus in auricle Z.Atheroma of pulmonary artery	5. V W X Y Z	W	19	-4
6. Which one of the following is NOT increased in a case of pyogenic meningitis with high fever? A.Cardiac output B. C.S.F. cells C. C.S.F. protein D. C.S.F. pressure E. C.S.F. sugar	6. A B C D E	E	16	9
7-11. Select from the list on the left the condition most likely to give rise to the effect named on the right.				
F.Gastric ulcer with recurrent small haemorrhages G.Gastric ulcer with single large haemorrhage H.Haemochromatosis I.Mesenteric sarcoma J.Patent omphalo-mesenteric duct K.Perforated anterior duodenal ulcer L.Pyloric stenosis M.Submucous lipoma of ileum				
7. Dehydration and alkalosis	7. F G H I J K L M	L	19	9
8. Intussusception in an adult	8. F G H I J K L M	M	19	5
9. Iron deficiency anaemia	9. F G H I J K L M	F	18	8
10. Pneumoperitoneum	10. F G H I J K L M	K	8	5
11. Simple haemo-dilution	11. F G H I J K L M	G	11	0

Fig. 7—A selection of pathology objective questions, set in the second and third term examinations.

The left-hand section reproduces as nearly as possible the lay-out of the actual question sheet.

The middle section reproduces the corresponding column of the answer sheet, which is separate. When the question sheet is correctly placed over the answer sheet, each answer blank comes to lie against its own question. The student is instructed to choose the best answer from those given, and ring the appropriate index letter in the corresponding answer blank.

The right-hand section gives the correct answers, and the total marks scored for each question by the students most successful and least successful respectively in the objective paper as a whole.

7–11 is only a space-saving variant of the basic question. Beware a temptation to make these groups too large: very long lists of alternatives waste the candidate's time, six questions and nine alternatives being the maximum advisable. (We like to avoid too rigid an approach to these grouped questions by introducing an occasional group in which two or more questions have the same answer.)

Students occasionally complain of the number of questions we set in the negative form exemplified by questions 4–6 of fig. 7. We favour it because it presents the student with four correct and only one incorrect statements: the opposite applies in the more usual type of question (e.g., 1–3 of fig. 7). Some parts of the paper are bound to remain in the candidate's memory, and we consider it advantageous that he should be presented with as many correct statements as possible in this way. For this and other reasons we avoid also the more primitive type of paper which consists of a large number of statements, each of which the candidate is required to mark as "true" or "false."

We have found it a most valuable precaution to set a preliminary draft of the paper before several members of staff to answer, and to ask them to justify any "wrong" answers they make. This may uncover loopholes in the questions and genuine disagreements over the right answer; it may even sometimes demonstrate that the examiners' ideas of the right answer are out of date or frankly incorrect.

A clear yet compact lay-out of the question-paper demands skilful use of the typewriter, and it is essential that this stage of the work be done by someone who understands the nature of the task and has time enough to prepare several drafts if necessary.

Marking

There is scope for considerable disagreement as to the details of marking. It is not enough to give one mark for each right answer: simple use of a pin will ensure one right answer in five. Doctors should not guess blindly, so one must penalise the wrong answer by subtracting marks. But doctors must sometimes be prepared to make decisions on incomplete evidence, so one should not over-penalise the reasoned guess. We compromise by giving one mark for each right answer and subtracting one-third of a mark for each wrong answer: with five possible answers this system ensures that only the completely blind guesser scores a minus mark.

Analysis

Analysis of the results, question by question, is a most valuable guide for later papers. Figures for total right and wrong answers to each question are useful, but it is both easier and more helpful to confine one's attention to the top and bottom quarters. The right-hand section of fig. 7 includes the results of such a mark analysis. One column gives the marks scored by the top twenty students for each question, another the marks for the bottom twenty (one for a correct answer and one-third

off for a wrong answer). The *sum* of these two figures is a measure of the difficulty of the question, their *difference* a measure of its ability to discriminate between good students and bad.

Thus, question 1 is clearly too easy, even the worst students nearly all getting it right. Such a question should not be repeated. Question 2 is too hard, even the best students losing marks on it: such a result may be taken at its face value as indicating a useless question, but it may also point to a gap in teaching. Question 4 is a good average level of difficulty, but fails to discriminate between good students and bad. Question 5 showed on this occasion nearly the maximum possible discrimination—a freak not likely to be repeated, but emphasising the value of questions of this type, with an answer not easily accessible to rote learning, but obvious to anyone with an understanding of the effects of mitral stenosis. The rest of the questions are of varying degrees of difficulty, but mostly show a reasonable degree of discrimination.

Clearly one should aim at questions with a fairly wide range of difficulty but avoiding the extremes: and one should aim at the maximum discrimination. A properly analysed collection of questions from previous papers greatly facilitates the composition of the subsequent year's paper.

Discussion

We believe that a class examination of the type we have adopted—that is to say, including both an objective paper and an essay paper—is better than either type of paper separately. Before considering how far our figures justify this belief, it may be worth summarising the theoretical basis for our adoption of a mixed examination.

At the start of this investigation, we postulated that an ordinary essay tests two very different things—factual knowledge and capacity to present it in logical and acceptable form. However much one may emphasise the importance to the student of understanding what he learns, and of being able to reproduce what he knows in coherent form, it remains true that he needs to base his understanding on a good deal of plain fact. Between the merits of two essays, one well argued and well written but based on few or erroneous facts, and the other compendious but ill-digested, it is possible for examiners to disagree very widely. Would it not be better to separate the two functions? An objective paper seems to present the best possible way of testing "mere" factual knowledge: once the essay is released from the necessity of testing factual knowledge, both in setting the question and in marking the answer one can concentrate on evidence of original thought, genuine understanding, or powers of exposition.

The inclusion of an objective paper seemed to us to have other advantages. The width of coverage of the subject possible with essays is limited, and this introduces a considerable element of chance into the results. A student who may happen to have missed a single lecture or a few pages in his textbook is often unfairly penalised. By scattering its numerous questions over every corner of the subject, an objective paper almost eliminates this element of chance. This wide survey of the subject is of importance not only in ensuring fairness, but in uncovering defects in the teaching programme. The great variability in marks given to the same essay by different examiners is also eliminated: the correct answer is predetermined and no element of judgment enters into the marking. The dull work of marking the scripts is avoided: it is true that the time is spent instead on preparing the objective paper, but this is at least a more interesting type of work. Moreover, once a sufficient number of questions has been devised, the work involved in composing future papers can be reduced.

On the other hand we have at no time had the intention of abandoning essays altogether. Even if the results of our analysis had shown that essays were altogether useless in predicting the performance of students (which it has not) we would have retained them. Literacy is essential in a doctor, and by demanding a minimum standard of ability to write English we do something to ensure this. Moreover, tedious though it is, reading students' essays reveals something of their difficulties and their ways of thought, accessible in no other way. Examinations have as a primary function the grading and testing of the candidates, but they have subsidiary functions in influencing the student's view on what is required of him, and in educating the examiner.

On the whole we believe now that the premises with which we began over-simplify some of the issues. In particular, we do not now maintain that the objective paper tests only factual knowedge. It has proved a matter of little difficulty to devise questions whose answers are readily deducible from a combination of elementary factual knowledge with a reasonable grasp of principles. Thus, for example, in question 5 of fig. 7, the rare candidate who is completely familiar with all the complications of mitral stenosis will of course achieve a correct answer: but the intelligent candidate who appreciates that stenosis of a valve is the last thing to cause hypertrophy of the chamber into which that valve discharges will be equally successful.

Similarly the view that we can neglect the content of factual knowledge in assessing the value of an essay soon proved fallacious. Our failure to demonstrate any bias of the performance of students whose native language was not English in favour of either type of paper (fig. 6) is another warning against too facile generalisations on the relationships of the two forms of paper.

The results of our statistical analysis are perhaps not very striking. The correlation coefficients included in tables I and II were selected because they illustrate the general trend of a more extensive analysis not favouring either type of examination. We conclude merely that there is no major difference between the ability of essay papers and objective papers to predict the results of the professional examinations. This, however, is in itself significant, for the trial as it stands is heavily prejudiced in favour of the essay paper by two circumstances:

(*a*) The essay papers in the class examination occupied twice the time of the objective papers.

(*b*) The professional examination, which we are using as a standard, includes no objective paper whatever: 50% of the marks awarded in that examination come from a written paper of standard essay type.

One would therefore have expected, if essay papers and objective papers were equally efficient, that under these circumstances the essay papers would have presented the more favourable figures. It is not unreasonable to suppose that if this had been a completely fair trial the objective papers would have emerged with a clear advantage; but under present circumstances it is hardly possible to devise a completely fair trial.

It seems to us especially significant that in both the years examined the highest correlation has been that of the total of all kinds of class examination. We remain convinced that a mixed paper, including both essay and objective questions, is better than either alone. It is well recognised that the mean mark of a group of independent examiners is more reliable than that of any single examiner: the mean mark of a number of different kinds of examination is similarly likely to be more reliable than any one of them alone. (Perhaps most of the real value of the objective paper lies in the fact that the preparation of the paper is the joint work of several examiners.) A good deal of the effectiveness of the professional examination derives from its consisting of three different kinds of test—written, practical and oral. Probably it would be even better if the written part itself was divided into essay and objective sections.

The present accepted pattern of professional examinations for the M.B. in this country throws an acute burden on the senior examiners, most of whom act both as internal examiners at home and external examiners at at least one other centre. The marking against time of large piles of ill-written essays, all on the same subject, is one of the least pleasant of tasks. Is it not reasonable to suggest that after further trials of objective examinations, conducted preferably in different subjects and by several medical schools, the time may soon be ripe for their introduction into the professional examinations themselves?

Summary

(1) Class examinations in pathology and bacteriology have been set which include both essay questions and an objective paper.

(2) On the assumption that the best available measure of the value of a class examination is its ability to predict the results of the professional examination held at the end of the course, correlation coefficients have been calculated between marks in class examinations of various kinds and marks in the 3rd M.B. professional examination.

(3) Though the conditions of the test favoured the essay-type class examination, the performance of essay and objective papers appeared to be approximately equal.

(4) It is argued that a combination of the two types of papers gives a better measure of the students' knowledge and abilities than either separately.

(5) A description is given of a convenient format for objective papers of the type involved.

We have to thank our colleagues, senior and junior, of the departments of pathology and bacteriology, without whose coöperation this work would have been impossible; Prof. G. M. Wishart for the preclinical average marks; Dr. R. A. Robb for statistical advice: and Prof. S. D. Nisbet for much help both in the original decision to use objective papers and in the final assessment of their value.

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CONTROLLED EXPERIMENTS IN TEACHING

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MANY teachers embark at some time upon at least one deliberate attempt to improve the educational techniques which they use. The results are often encouraging and sometimes published, but they are seldom controlled with the rigidity of well-planned laboratory or field investigations. For instance, the report of an extremely comprehensive inquiry into preclinical teaching in the United States (Report of the First Teaching Institute 1954) devotes only 3 pages in 120 of text to experimental evaluation of teaching methods, and the ratio is similar in the Proceedings of the First World Conference on Medical Education (1953). It is important that studies should be properly controlled because a change of method of any kind is likely to have beneficial effects for a short time: examples of this phenomenon are known in a wide variety of circumstances—from factory work (Whitehead 1938) to mental institutions (Houston 1956)—and it would be unwise to ignore its influence in studies on medical teaching. Controlled observations present problems of organisation and of overcoming prejudice, and problems of evaluating the success of teaching (Samter et al. 1957). These problems can be overcome, however, by such an experimental approach as is described here.

The present studies were carried out within the framework of ordinary courses for medical students. Alternative methods were compared by teaching different topics by different methods to the same students, or by dividing the students in a course into groups and then teaching the same topics by different methods to different groups. The experimental designs, necessarily slightly complex in order to deal with the numerous variables involved, followed principles discussed by Fisher (1951). To avoid possible injustice, or a sense of injustice, arising because students were treated differently from their fellows, additional teaching was given at the end of each study partly as requested by students and partly as suggested by the test results.

The success of teaching was evaluated by short-answer and multiple-choice tests. The advantages of these tests have been surveyed by Vernon (1956) and, in relation to medical subjects, by Sinclair (1953) and Moore (1954). They are more reliable than more conventional kinds of examination, in that they are less subject to distortion in marking and the performance of students is consistent on repeated testing. It has been shown repeatedly that a single essay answer from a conventional examination may receive any of a wide range of marks from different examiners or even from the same examiner on different occasions (Hartog and Rhodes 1936, Cast 1940, Hartog 1941, Bull 1956). Oral examinations are also unreliable, in spite of the confidence they usually inspire in those who conduct them (Hartog and Rhodes 1936, Vernon and Parry 1949, Himmelweit and Summerfield 1951, Eysenck 1953). There appears to be no need to confirm these extensive and carefully conducted studies and we have preferred not to use demonstrably unreliable methods.

Short-answer and multiple-choice tests are of limited validity (as contrasted with reliability) in that they estimate mainly the retention of facts and seldom show the capacity to use these facts constructively. Further, their validity has not been established, as far as we know, by comparing students' test marks with their subsequent professional record (Sinclair 1955), though this is a failing of most if not all kinds of examination. The kind of test used here, however, appears to be more valid as well as more reliable than others, though there is evidently much scope for investigating better methods of evaluation. Students' own impressions about the efficiency of a course are of interest (Anderson 1954, Smith 1955) and might prove a valid criterion of its efficiency. Such impressions have therefore been collected during these studies.

Methods of Teaching

The four methods of teaching considered were lectures, discussion groups, practical classes, and unsupervised reading. In lectures, material was presented by the lecturer's spoken word, and no deliberate response was required from the students. In discussion groups the teacher aimed to elicit active contribution from the students and confined himself to promoting discussion and to supplying information when necessary. In practical classes the students received written instructions for procedure and the teacher supplemented these by verbal instruction, by demonstrating experimental procedure, and by criticising students' practical work. Lectures lasted for about 1 hour, discussion groups for $1^1/_2$ hours, and practical classes for $2^1/_4$ hours, but the exact duration and other details of procedure were left to the

preference at the time of the teachers concerned. Unsupervised reading was directed by written instructions about the ground to be covered. In all the work students were encouraged to consult any of the teachers concerned about any points on which they required guidance.

Tests Used

Four types of test were used. The first three each contained 32 or 36 questions on topics about which the students had recently been taught. An equal number of questions was allotted to each topic, using this term to refer to the subject matter of a single lecture or other teaching session. As some overlapping was inevitable, the allocation was slightly arbitrary.

In the first of these three tests (the short-answer test), the questions could be answered often in one word and always in less than ten, and were intended, apart from verbal variation, to have only one correct answer. In practice a few questions elicited unforeseen answers; rules were devised to allow these cases to be treated in a standard fashion (Vernon 1956).

The second test (multiple-choice), which was issued to students only after the first had been completed and handed in, consisted of the same 32 or 36 questions, but with the addition of four possible answers to each. One answer was correct, but the others were intended to be equally attractive to a candidate who was guessing.

The third test had a similar structure, but contained a different kind of question, the answers to which were related to the question approximately in the manner of deductions to premises, so that errors could be divided into logical and factual categories. This possibility may have useful applications (Moore 1954) but it is not considered further in this paper. It seems likely that the ability to reason has more scope in this test than in the previous ones, but all the tests used could be answered correctly by students with a sufficiently accurate and extensive memory.

The fourth test (blank test) consisted of a series of short paragraphs describing physiological processes and the effects of drugs on them. Ten key words, such as the names of drugs producing described effects, or the consequence of interfering with some part of a physiological mechanism, were omitted in each paragraph and the student was required to fill the gaps. Connected or logical thought may have been useful here as in the third test. An advantage of the blank test was that it could be set and marked very quickly.

The difficulty of the questions in each of the tests was such that all the students tested were able to answer correctly more questions than could be accounted for by chance alone, but no student succeeded in answering correctly all the questions in any test. All questions and alternative answers were criticised and agreed in their final form by the teachers who took part in the study. The order of presentation of the questions in the first three tests, and of the multiple-choice answers, was determined by appropriate random methods. 30 minutes were allowed for answering each of the first three tests and 20 minutes for a four-paragraph test of the fourth type.

Preliminary Study

The first observations were made during a course in pharmacology for about 35 students who had begun clinical work. It was convenient to divide the material to be covered during a particular term into twelve sections, and there were ten periods available for teaching. Nine of the topics were covered in lectures; students were advised that the other three were to be covered by their own reading, and the tenth period was used for a class examination of the types described above, but without blank tests.

Each of the twelve topics was represented by three questions in each part of the examination. The lectures were divided at random equally between the three lecturers and the "dummy" (reading), so that the results of the examination

TABLE I—MEAN MARKS OBTAINED BY STUDENTS IN PRELIMINARY STUDY

Material taught by	Lecturer	Mean and standard error of marks in			
		Test 1 (short-answer)	Test 2 (multiple-choice) (questions as in test 1)	Test 3 (multiple-choice) (fresh questions)	Tests 2+3
Lectures	X	23·3 ±3·7	27·3 ±2·0	29·0 ±2·0	28·2 } 24·3 ±1·04
	Y	14·7 ±2·0	20·0 ±3·0	25·1 ±2·8	22·6 }
	Z	20·9 ±3·6	23·8 ±2·1	20·4 ±2·4	22·1 }
Reading	..	14·1 ±2·5	18·4 ±2·0	20·8 ±3·2	19·6 ±1·84

Maximum mark in any section = 36: no correction applied for chance score in tests B and C. No. of students in each test = 35. Significance of difference between mean scores from lectures and reading, $t = 2{\cdot}20$, $0{\cdot}05 > P > 0{\cdot}02$.

gave information about the relative efficiency of the three lecturers as well as about the comparison between topics taught by lecturing and topics learnt by reading. The main results of the examination are shown in table I, where they are analysed by lecturers and by tests. The results are the means of the actual marks obtained and do not take account of the fact that some marks would have been obtained in tests 2 and 3 by chance. With suitable adjustment (Vernon 1956), the marks on tests 2 and 3 are reduced and the differences between them and the marks on test 1 become insignificant.

It appeared that students fared least well on the topics not covered by lectures. The difference was not large, and it might have been supposed that either the teaching had little more effect than unsupervised reading or a real effect of teaching had been obscured by differences in the difficulty of the questions which were asked about the topics. However, the questions asked about each of the three topics taught by a particular lecturer produced similar patterns of marking, as did the different questions of tests 2 and 3, so there is no evidence of a systematic difference in the levels of difficulty. Evidently lecturing led to better performances than no lecturing, although for two of the three lecturers this difference was not statistically significant. It should be added that a number of students remarked that the questions on the topics about which they had only read contained some unforeseen material, and they suggested that their reading would have been more effective had they been given a more precise syllabus.

Some of the students examined had missed one or more of the lectures. The average rate of absenteeism was 4·0 students per lecture, and the average score on all the tests and on all the topics was 0·6 marks per test less for students who had been absent from the lectures on the topics concerned than for those who had been present. This is much smaller than the difference of 4·7 marks per test between topics on which lectures were given and those on which there were no lectures. The number of absentees was too small for much significance to be attached to the observed differences in the mean marks, but they are at least explicable, since students who miss lectures often try to find out what ground was covered in their absence.

It appeared, therefore, from these observations that students were better informed about topics on which lectures had been given, that occasional absence from lectures did not matter much, and that the differing efficiency of lecturers was not to be ignored in assessing results of this sort.

The three topics which had not been covered by lectures were treated by lecturer X in the following term, so that the knowledge of those who had participated in the experiment should not suffer as a consequence.

Design of the Principal Study

It appeared that the methods of testing gave informative results and a larger investigation was designed, in which practical classes and discussion groups were

TABLE II—MEAN SCORES OF GROUPS OF STUDENTS: STATISTICS

Student group	No. of students in group	Mean score obtained on				Grand mean
		Lectures	Practicals	Discussions	Reading	
A	13	6·5 (V.II)	6·9 (Y.I)	7·9 (X.IV)	5·2 (O.III)	6·6
B	13	5·1 (X.III)	8·7 (W.IV)	7·3 (V.I)	5·9 (O.II)	6·8
C	11	8·5 (Y.IV)	5·4 (V.III)	7·4 (W.II)	7·3 (O.I)	7·1
D	16	6·8 (W.I)	6·3 (X.II)	4·8 (Y.III)	6·8 (O.IV)	6·1
Weighted mean	53	6·6	6·8	6·3	6·7	6·6

Maximum score for any item 12·0. Weighted mean scores for tutors, unadjusted for missing topic, V = 6·5; W = 7·6; X = 6·4; Y = 6·5; no tutor (i.e., score for reading) = 6·7. I–IV = topics.

included as well as lectures and reading. The trial was carried out during a period of two weeks in which preclinical students received some instruction in statistics and in physiological aspects of pharmacology. The course in statistics had very limited aims. Its function was to inform students what statistics was about, to make them aware of sampling variation and of errors which can arise from it, and to let them gain acquaintance with the principles of therapeutic trials and their evaluation. The course in pharmacology dealt with the autonomic nervous system and neuromuscular transmission, and with some general aspects of the absorption and fate of drugs in the body. Practically all the material was new to almost all the students. The material was divided into two parts, one mainly statistical and one mainly pharmacological. Each part contained four topics, whose relation to each other was closer than that of those in the previous experiment, and whose subject matter was so divided that each topic could form the basis of experimental work carried out in the practical class.

The students were divided into four groups, each of which contained about 14 members. These groups were the same as those which had been adopted for earlier group teaching in physiology, and the grouping had an approximately alphabetical basis. The students had worked in these groups for a term and a half, and it is possible that during this time some differences had developed between the abilities of the groups. No such differences were found between groups at the end of this study, and it is therefore unlikely that they were important at the beginning. All students came together for two introductory lectures, one at the start of each part of the course, and were then taught in groups, either by lectures, practical classes, or discussion groups, or by being given references to appropriate sources which they could read for themselves. Abstracts of about 250 words on each of the eight topics were issued to all students at the first introductory lecture, so that the scope of each topic was clearly set out. In each part of the course, no group of students was taught twice by the same teacher: each group was taught by all four methods: and no two groups were taught the same topic by the same method. The results were evaluated by tests similar to those used before, with the addition of a "blank test" on each of the four pharmacological topics. For obvious reasons, the topics were taught to all groups in the same sequence. Each group was allotted to a sequence of methods of teaching by means of a pair of 4 × 4 Graeco-Latin squares (Fisher 1951), in which the remaining variable determined the allocation of teachers. The design made it possible to assess separately the differences between students, groups of students, topics, teachers, and methods of teaching.

These arrangements had some unavoidable defects. The course followed by any individual student differed in some respects from any arrangement likely to have been met with when no investigation was being conducted, but its possible deficiencies from the student's point of view were made good after the experimental period by providing appropriate additional teaching. Also, only one method was used for teaching a given topic to a particular student, but this procedure was a necessary experimental step, as it is unprofitable to attempt to determine the value of combinations of methods without first testing each one singly. Further work will be required to examine the best ways of combining different methods of teaching.

TABLE IV—ANALYSIS OF VARIANCE OF SCORES OBTAINED IN EXAMINATION ON PHARMACOLOGY

Variance	Degrees of freedom	Mean squared deviation	Error ratio	P
Between groups of students	3	5·7	..	+
,, individual ,,	49	11·8	5·6	<0·001
,, tests	3	978·0	465·7	<0·001
,, topics	3	16·7	7·9	<0·001
,, methods of teaching	3	13·8	6·6	<0·001
Due to error	786	2·1	..	..

P = Probability of observed difference occurring by chance.
+ = Not significant, in comparison with the variation between individual students; the ratio of the variance between groups of students and the variance due to error is significant at the 5 % level, but this represents only the individual variation between students (Croxton and Cowden 1955, p. 719).

Results

As in the previous experiment, performances on the different kinds of test employed did not differ significantly, and the results from all tests have therefore been put together in tables II and III. The mean marks for each method of teaching did not differ much. For statistics the differences were quite insignificant: the principal source of variation shown in table II is due to the low marks always obtained on topic III (which was concerned with therapeutic trials and chance differences). The low marks may mean that the topic was difficult or that the questions set were harder than usual, though both of these expressions presuppose a somewhat imaginary concept of a standard of difficulty. The tests on pharmacological topics were fuller, and yielded results of high statistical significance (table IV). Discussion groups and lectures were more effective than practical classes, and, as in the preliminary study, reading was the least valuable method for the purpose of success in the examination used here. The results are in part taken to show that this type of examination favours knowledge inculcated by

TABLE III—MEAN SCORES OF GROUPS OF STUDENTS, BY TOPICS AND METHODS OF TEACHING PHARMACOLOGY

Student group	No. of students in group	Mean score obtained on				Grand mean
		Lectures	Practicals	Discussions	Reading	
A	13	15·4 (W.VI)	15·8 (Z.VII)	15·8 (X.VIII)	12·2 (O.V)	14·8
B	13	15·0 (Y.VIII)	12·1 (Z.V)	15·2 (Z.VI)	11·9 (O.VII)	13·6
C	11	14·7 (X.VII)	14·6 (Y.VI)	11·8 (W.V)	14·1 (O.VIII)	13·8
D	16	12·8 (Z.V)	11·5 (W.VIII)	16·3 (Y.VII)	12·9 (O.VI)	13·4
Weighted mean	53	14·4	13·3	15·0	12·7	13·9

Maximum score 24·0. Weighted means for tutors, unadjusted for missing topic, W = 12·9; X = 14·2; Y = 15·4; Z = 14·5; no tutor (i.e., score for reading) = 12·7. Mean score for topics, V = 12·2; VI = 14·5; VII = 14·7; VIII = 14·1.

lectures and discussion groups. This may be expected, because it is presumably more difficult to orient a practical class towards a required end than it is to do so with spoken material only: while in the case of reading, unless the text is specially provided, the question of orientation does not arise in the same way. The most interesting result, therefore, is the small difference between teaching by formal lecture and by informal discussion. This point is taken up later.

The lack of difference between all the methods of teaching statistics may represent only the greater difficulty here of restricting the subject matter of each teaching period to the syllabus. The statistical topics were less sharply defined than those in pharmacology, and so each examination question was less related to a specific teaching session and therefore a less accurate measure of the success of teaching by a particular method.

Differences between teachers are less easily estimated than in the first inquiry. The mean score of each teacher is unbalanced unless it is adjusted to allow for the topic that he did not teach (which was also the topic read by students without supervision). In view of the small variation due to other causes, the addition to the teachers' totals of the mark for the topic read is probably not a very misleading adjustment, and it is simple. This adjustment is not shown in the tables: it results in W having the highest score and Y the lowest in teaching statistics, while their position in teaching pharmacology was exactly the opposite, with Z and X placed intermediately. It will be recollected that in the preliminary study in teaching pharmacology X had a considerable lead over both Y and Z, and these differences raise interesting questions about variation in the efficiency of teachers, and the factors responsible for such variation. It seems likely that a given teacher teaches better about some subjects than about others even within his normal range of material although his own estimates of his success may not agree with those made by his students nor by more objective criteria. It is also possible that a given teacher finds it easier to teach some groups of students than others, as indeed he does some individuals. This sort of point requires further investigation.

There was no convincing evidence that the groups of students differed appreciably in their performance. The differences between individual students were highly significant, as was to be expected; but the variation between groups did not differ significantly from that within groups. It follows that the order in which different methods of teaching were used had no detectable effect, since this would have appeared in the comparison between the differently treated groups.

Students' Impressions of Teaching Methods

After the course had been completed, and again immediately after the examination which followed it, each student answered a questionnaire which was designed to stimulate comments, criticism, and suggestions. He was also asked to rank the methods of teaching according to his enjoyment of them and according to the order in which he considered that they had promoted his understanding of the topic. This last question was put several times in various guises, in order to assess the stability of the judgments involved.

The stability of the judgments was high, and enjoyment of each method correlated highly with the judgments of its efficiency. The judgments were compared with performance in the tests, after allowance had been made for differences in difficulty of the questions used. If students' judgments about the relative efficiency of teaching methods formed a valid criterion of such efficiency, it would be expected that the performance of an individual, when examined about topics taught by the method he most preferred, would be consistently better than his performance when examined on those taught by the method he liked least. This did not prove to be the case. For each of the four methods used, the mean performance of those who preferred it did not differ significantly from that of those who liked it least. Further, exactly half the performances of individual students when examined on topics taught by the method of their own choice were worse than those when examined on the topics taught by that which they liked least.

It follows that performance and student's judgments cannot both be good criteria of the efficiency of teaching methods. Anderson (1954) has come to a similar conclusion in quite a different context. For the moment, it seems better to consider that the performance is more valid than the judgment. There is some evidence from other sources which suggests that the performance of students who express strong views, either of approval or of disapproval, about the course they have attended is inferior to that of students whose judgments are more moderate (Smith 1955).

Influence of Size of Class

These experiments give no information about the relationship of the size of the class to the efficiency of the teaching (Longstaff 1932). This point would repay experimental examination. All the tutors agreed, however, that 13–16 was the upper manageable limit for discussion groups of the kind used here: three of the tutors had at one time regularly conducted discussion groups of 20–24 and found them unsatisfactory. For practical classes there is more variation in possible ratios of staff to student numbers, but the present ratio of one teacher to 13–16 students was workable and not unusual. For lectures the position was different. The experimental lectures were artificial in that the audience was smaller than usual (and were in this respect slightly disconcerting to the lecturers). It seems likely that an increase in the size of the audience would have two effects—a different stimulus to the lecturer and the provision of greater opportunity for inattention on the part of certain students. For these reasons it is necessary to be careful in interpreting the results obtained from lectures. It seems reasonable to assume, however, that the results obtained by lectures would not be seriously altered by a fourfold increase in the size of the audience. If so it is possible to compare the efficiency of different methods of teaching in terms of the time expended in each of them.

Expenditure of Time in Different Methods of Teaching

Other things being equal, the most effective method of teaching is that which makes knowledge available and useful to students with the smallest investment of time (and, of course, of material resources of all kinds). This involves the time spent both by teachers and by students, and some information has been collected on this point. The time actually spent in classes of various kinds was recorded and did not differ seriously from that planned—i.e., 1 hour per lecture, $1\frac{1}{2}$ hours per discussion, and $2\frac{1}{4}$ hours per practical. The estimation of the total time needed for preparation or subsequent reading by individuals presented certain difficulties.

Students were asked to record at the time how they spent each working hour on a chart issued to them at the start of the course. All the students returned records, which varied greatly in value. Twelve records were sufficiently detailed to indicate how much time these students spent reading (*a*) on the topic which was not taught to them by any other method, (*b*) on topics in which they also received instruction in some form. From these records it appeared that half the total reading time had been spent on (*a*) and the other half, covering about three times as much material, on (*b*). The remaining records gave information on the total time spent in work outside organised sessions in connection with the course: the average was 13 hours per student. If the records are reliable and if the time was partitioned in all cases as

indicated by the average from the twelve fullest reports, the students worked for about three hours on each topic which they were obliged to read and for one hour on each topic in which they received other teaching. There is great individual variation in these figures and they depend on records of unchecked reliability. Such validity as they possess holds only for the present course.

Similar information was collected from the five tutors after the course was over. Estimates based on their expenditure of time in connection with this particular course would have been misleading, because a large additional amount of time was taken in organising the experimental side of the work. On the basis of their general experience of teaching over the past 1–10 years, they agreed that there was wide variation, from $^1/_4$ hour to 8 hours, in the time expended on different occasions in preparing or revising material for lectures, in setting up practical classes, and in considering students' work and records in connection with group teaching. There were no gross differences in the estimates of the average additional time for sessions of different types, and an overall average was obtained of about 2 hours per session. It was also agreed that reliable estimates of the time spent in preparation could only be obtained from records made at the time and averaged over a period of years.

From the foregoing rough estimates the average times consumed by different methods of teaching (combining the actual class time with that spent in ancillary work) were, for students, lectures 2 hours, discussion groups $2^1/_2$ hours, and practical classes or reading 3 hours per topic or session. These figures are not likely to be affected seriously by the size of classes; presumably it takes a student equally long to attend and work up a lecture given to an audience of 10 or of 100. For tutors the size of classes is relevant to the economics of teaching, and the figures amount to 0·05 hour per session per student for lectures (assuming an audience of 60); 0·3 hour per session per student for discussion groups of 12 students, and 0·33 hour per session per student for practical classes on the same scale. Although these estimates are very approximate, they are probably reliable enough to emphasise the economy, both to students and staff, of lecturing compared with practical classes and discussion groups for the functions tested in the present experiments.

Discussion

This work has compared the efficiency of various methods of teaching. For reasons already discussed, this has been estimated by means of "objective" examinations. The merits of different types of examination form a problem of its own, as do the choice and validation of the criteria by which professional "success" is judged, and the methods of selecting for training those students who are most likely to achieve it. All these questions are of great importance to a satisfactory system of medical education.

Different kinds of examination test different abilities. The medical student or doctor is called upon to recognise symptoms presented to him and to recall observations that he has previously made and with which he is not at the moment confronted. For this reason both short-answer (or recall) and multiple-choice (or recognition) tests with identical questions were used in this study (tests 1 and 2). There is little evidence that individual topics were either recalled or recognised with different degrees of success, or that the methods of teaching gave results which depended on the method of testing. The examination was taken almost immediately after teaching was completed, and it is conceivable that the relative efficiency of different methods would show changes with the passage of time that depended on the way in which retention was tested (Jayne 1944).

The main purpose of this paper is to draw attention to simple methods which are available for evaluating parts of existing systems of teaching and of contemplated changes in it. These methods depend upon well-established principles of experimentation, which, however, are seldom applied in this context. The principal difficulty lies in finding suitable methods for estimating the effects of teaching. The use of objective examinations is attractive, though their questions are made to yield unambiguous information about the relevent points only by rigorous attention to phrasing, careful delineation of content, and adequate demonstration of their reliability (Moore 1954, Vernon 1956). Such tests have shown here only small differences in the effectiveness of discussion groups and lectures. Practical classes are less effective and consume rather more time on the part of both student and teacher; and reading is least effective though it does not require any time at all from teachers after appropriate directions have been issued.

In this study, students were dealing in discussion groups with material which was new to them, and several thought that use of discussion groups in this way was a waste of time. It is quite likely that these groups are better used to develop material which has already been presented in lectures or in reading. Certainly, the present study has not made the fullest use of group teaching, because meetings between student and teacher were not sufficiently prolonged or frequent to develop the advantages of the system (Ellis 1956, Reynell 1956). Both sides are believed to profit from this arrangement, though such profits are not easy to estimate quantitatively and are not of the kind tested here. Effective teaching depends on the relationship between teacher and taught, but it is easier to approach this question from the teacher's than from the student's side, as the teacher has more opportunity for repeated study of the problems involved. The type of experiment described here is useful to an individual teacher in deciding how he can teach effectively, without relying solely upon his unvalidated subjective impressions or even on those of his students. It may also be used to inquire whether any given student derives more benefit from a particular method of teaching than from any other (Greene 1928, Corey 1934), and to provide a basis for adapting courses accordingly.

It has been noted already that any kind of innovation can lead to an improvement of performance in many situations which involve human beings. Mere participation in an experiment can act in this way (Houston 1956), and this effect is certainly useful. But this makes it all the more necessary, in order to obtain information as well as stimulation, to employ the appropriate controls. Experiments on a relatively small scale can also quickly make available information about performance both to students and to teachers. Such knowledge of results has been known for a long time to contribute greatly to the improvement of performance (Arps 1917, Carmichael and Dearborn 1948) and provides further reason for experimental examination of teaching methods at frequent intervals.

Summary

The efficiency of different methods of teaching has been evaluated by suitable arrangement of two courses and the use of short-answer and multiple-choice tests for assessing the knowledge gained by the students. Discussion groups lead to slightly more gain of knowledge than lectures or practical classes, and unsupervised reading was consistently least effective. As lectures were only slightly inferior to discussion groups and were considerably less time-consuming, especially for staff, their efficiency in terms of results obtained for amount of work done ranked highest.

We are deeply indebted to our colleagues who took part in these experiments, and to our students, for their cheerful and willing coöperation and their critical interest.

References at foot of next page.

MEDICAL STUDENTS LOOK WEST

IMPRESSIONS OF SOME AMERICAN MEDICAL SCHOOLS

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LAST summer we were enabled by the London Hospital Medical College, in collaboration with Columbia and Western Reserve Universities and the University of Virginia, to visit several American medical schools. At this time we were completing our second year of clinical studies. One of us had received his preclinical education at Oxford, one at Cambridge, and one at The London Hospital.

We worked as clinical clerks for periods up to six weeks in the medical schools of the three American universities. We lived and studied under the same conditions as American students. We have therefore been at the "receiving end" of medical education in both countries, and there may be some value in recording our reactions to some of the different forms of education that we have experienced. Discussions with a number of American students who have studied at The London Hospital in the past two years have helped to clarify our impressions.

Perhaps no American medical school can properly be called typical, but the educational systems at Virginia and Columbia resemble those of many others. Western Reserve, however, is engaged on an extensive experiment in medical education and is certainly not typical (Sinclair 1953, Ham 1954, Ellis 1956).

We have concerned ourselves primarily with the incentives to learn medicine, because it is in the matter of incentives that there seems to us to be the greatest difference in medical education between the two countries.

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Incentives to Work

STUDENT RESPONSIBILITY; STUDENT-TEACHER RELATIONSHIP

British observers generally consider that the American medical student has a greater degree of responsibility towards his patient than has his British counterpart. We thought that this was true to some extent; but a more precise definition of the difference is that there are certain circumstances which make it possible for the teaching staff of American schools to give the student *the impression that he is a member of the clinical team.* The main reasons are that there are usually considerably more teachers per student in America, and the organisation of American medicine enables them to devote more time to teaching.

Given these factors, what really creates the "part-of-the-team" atmosphere is the attitude of friendly equality between staff and students. Students' opinions on diagnosis and treatment are always asked. These are surprisingly gently elicited: there is seldom the "grilling" so familiar to British students! Discussion is very free and we saw very little dogmatic didacticism. The staff were able to spend large amounts of time teaching us clinical medicine and introducing us to new ideas. A notable feature is the Staff Conference, at which difficulties in diagnosis and management are presented, often by the student, to a large audience of consultants from various departments of the hospital. The students can enter freely into the discussion and often have the stimulating experience of hearing their chiefs in profound disagreement. We found it the rule rather than the exception for a student to stop a consultant in a corridor to discuss a case with him. The relationship of staff and students in many ways resembles that between fellows and undergraduates at Oxford and Cambridge. Undoubtedly, one of the main incentives to work is enthusiasm for and a sense of participation in one's subject. The worse type of incentive—fear of examinations—has been largely removed in the schools that we visited.

Outpatient and Home Care

The student is thus treated virtually as a doctor, and institutions which interested us particularly, illustrate this. These were (i) the outpatient teaching systems, which were similarly run in all the schools we visited, and (ii) the home-care programmes organised by Tufts Medical College and Boston University.

In the outpatient department the student is the first to see the patient, apart from a preliminary selection of suitable cases. He has a fully equipped room of his own, in which he interviews the patient alone. The patient is very often unaware that the student is not a doctor and he is not enlightened. At Columbia a hospital pamphlet explaining outpatient procedure to patients refers to the student as "an assistant." A full history is taken and a physical examination is made, and certain laboratory tests may be performed by the student—all this may take *anything from 1½ to 4 hours.*

The student then discusses the case with a member of the staff, usually a consultant, and suggests the diagnosis and treatment. The staff member and the student return to the patient to confirm outstanding points. The student then explains the position to the patient, describes the course to be followed, and writes any prescriptions that may be needed.

Thus, the outpatient departments that we saw were, from the students' viewpoint, run on a more individual basis than they generally are in Britain, and give the student a welcome degree of responsibility. Outpatient teaching in Britain is done much more in the "main stream" of providing a medical service for the community, and pressure of work means that the turnover-rate must be swift. Individual rooms for students are seldom provided and the student is not usually able to

take his time over a case. Thus, the teaching is much more demonstrative: the position was summed up by one of the American students visiting The London Hospital as follows: "The outpatient teaching was mostly verbal, although some physical examination by students did occur; I found the method of teaching very good as a *supplement* to more intensive clinical training on the wards." In fact the type of outpatient teaching that we encountered in the United States has no counterpart in this country. Theirs provides learning by responsible experience; ours provides learning by observation of others working or from demonstration teaching. Both methods are valuable and both should be provided.

The second institution, the home-care programmes at Boston University and Tufts Medical Colleges, was the one in which we saw the greatest responsibility given to students. Massachusetts State Law allows medical students in their last two years of training to engage in a limited practice of medicine. For well over fifty years the students of Tufts and Boston University have cared for the poor in some of the slum areas of the city by means of a group organisation run by the medical schools.

We spent a most profitable day with some of the students in their duties. Students visit the patients in their homes and may prescribe certain drugs for them. They go alone on these visits, but if in doubt or difficulty ring up headquarters and a qualified doctor gives advice or goes to see the case with them. This scheme provides excellent opportunities to study both acute infectious disease in children and chronic disease in the elderly, and gives the student a definite responsibility towards his patient.

ATTITUDE TOWARDS RESEARCH IDEAS

One of the most striking differences between the two countries is in their attitudes towards research and research ideas. In the United Kingdom, mainly because of the exigencies of what we regard as an outmoded examination system, the student tends to steer clear of these ideas, labelling them as "high-powered," or hardly relevant to the immediate business of getting through a final examination with a very high failure-rate. The American students are not so encumbered: they have time to think about the frontiers of their subject and to develop a critical attitude to research ideas; and this sort of attitude extends itself naturally into their everyday clinical work. At the schools we visited the students are very much conscious of research. They are avid journal readers; at Virginia and Columbia many students take research posts in their vacations or spare time; clinical teaching has the flavour of new ideas; there are journal clubs for discussing recent work. Western Reserve has gone further by including a compulsory period of research in its curriculum and a thesis is required at the end of it. The object of this system is to develop scientific understanding and thought, and an appreciation of research method. As we saw it, this often proved very valuable and enjoyable, but we had serious doubts whether there was really time for it in a short four-year course. We felt that the stated objects of this research course can be realised by suitable clinical teaching.

Closely connected with this attitude is the system of elective clerkships existing in many schools. Under this system the student, instead of holding a series of compulsory appointments, is allowed to choose what particular branches of medicine he would like to study in rather more detail during the latter part of his clinical training. The purpose of the clerkships is to give the student some experience of *what it is like* to go more deeply into a subject and the hope is that he will get more out of it than the specialised knowledge which he may acquire.

Three to six months are set aside in which the students may choose his own course of study. He has a choice of a large number of firms, mostly specialised, on each of which he may serve for 1–4 months. There are usually from one to three students per elective firm, so that more individual teaching is possible.

On an "elective" in hæmatology one of us was the only student for some time and was being taught by no less than six members of the staff, of whom three were consultants; under these conditions it is easy to arouse enthusiasm and the student cannot help feeling intimately associated with the work of the firm. The student's duties are not greatly different from those in inpatient work at home, except that there is considerably more opportunity for performing technical procedures.

We thought that this was a good system, and an excellent incentive to clinical work in general.

THE EXAMINATION SYSTEM

The American students visiting The London Hospital and we ourselves were struck by the difference in atmosphere directly attributable to the different methods of assessing students. Virginia and Columbia have gone some way towards removing the fear of examinations as an incentive, and Western Reserve considerably further. Firstly, in all these schools, once the student has reached his fourth and final year qualification is virtually certain. At Western Reserve there is no University final examination, but as in all schools, the State or National licensing examinations must be passed before practice is permitted outside hospital. The failure-rate in these examinations, however, is no more than 2–3%. Before the final or State Board examinations the student usually works fairly hard but we saw no evidence of a frantic rush to memorise everything, as often happens in this country. At Virginia and Columbia there are a number of intermediary examinations throughout the course and students are graded partly on the results of these tests.

Fear of getting a poor grade is still a great incentive to work, for the grading of a student influences the tone of the dean's recommendation when applying for an internship. It should be noted, however, that internships are settled *before* qualification and that most students prefer to get away from their own teaching hospitals for their internships. At Western Reserve the students are not graded on the intermediary tests, which are mainly completely anonymous; thus, the examiners have only an idea of the general attainment of the class, but the students are able to note on their returned papers in which respects improvement is needed. In those tests which are not anonymous the attention of the faculty is drawn only to those students who do poorly—and these students may be warned and given extra tuition. Students are in the main assessed by reports which are given on them by various people with whom they come into contact during their training. These include tutors, research-project directors, chiefs of firms, and social workers.

The American students were critical of our examination system:

> "This testing system leads to all varieties of ills; for instance, students tend to study only for the test and not for their ultimate medical knowledge; the knowledge needed to pass a given test may be acquired by cramming (soon forgotten), by a calculated review of previous tests, or by knowing the experience of the examiner, or by other tricks of the trade. None of these methods seems to lead to good medical knowledge."

The American student therefore has a considerably greater degree of security, particularly in his final year, and he is far more free to make the best use of his time and opportunities. In our view, some form of progressive assessment would be preferable to the present system in the United Kingdom.

Student Life

The American student everywhere works harder than his British counterpart.

Before entering medical school he has had four years of general college education. This is the time to enjoy himself, to take part in social, sporting, and cultural affairs. When he goes to medical school, he is about 22, and he realises that the halcyon days are over. He has to master what is very often a new type of discipline in a short four years, and he sets to work in no uncertain fashion. Organised extracurricular activities are practically in abeyance.

The day starts at 8.0 A.M. or earlier, either at a lecture or on the wards, and finishes in the evening either when the student has discharged his responsibilities or when there is nothing of particular interest going on—and this is often not till very late at night. Most students work on four or five nights a week. There is usually up to three months vacation per year and this further increases the necessity for working at medicine to the virtual exclusion of other activities.

It is not surprising therefore that, when they came to The London Hospital, the Americans were amazed, and at first disconcerted, by "the lenient working hours—almost unbelievable to us at first."

Such spare time as remains is used in various ways. There is very much less collegiate life than in this country—clubs and societies are almost non-existent. Many students contribute considerably towards their expenses by taking part-time jobs, which are usually much more lucrative than in Britain. In their final year many hold student externships during their vacations in short-staffed outside hospitals. The responsibilities are virtually those of an intern—i.e., complete charge of patients supervised only by a registrar. At Virginia many did night duty in various departments of the hospital—for example, the blood-bank, surgery, the clinical laboratory—in return for the free board and lodging. Students' fees and expenses are covered by a combination of private funds, loans from banks, and the medical school, and wives' incomes (at one school 80% of the students are married by the final year). There are practically no scholarships and grants. The student is certainly helped in his financial dealings by knowing exactly when he will qualify.

Conclusions

We have described those features of American medical education which impressed us most. We feel that American medical students enjoy the advantages of better incentives to work, and greater security than British students do. It became clear to us how much the pattern of education and the reactions of both the teachers and the taught depend upon the assessment system. We think that the introduction of progressive assessment in this country would enable the student to acquire a freer and more critical outlook and the teaching staffs would be less bound by the necessity of teaching with examination requirements in mind.

We were most impressed with the outpatient courses, which are designed to give the student a large measure of responsible practice, and with the system of elective clerkships.

We were extremely fortunate to have the opportunity to visit these schools and we should like to thank The London Hospital Medical College for arranging the visit and for helping us financially from the Eliza Anne Alston Fund. We should also like to thank all those in the United States whose hospitality made our visit possible and so very pleasant.

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A SCHEMATIC MODEL OF THE SPINAL CORD AND BRAIN STEM

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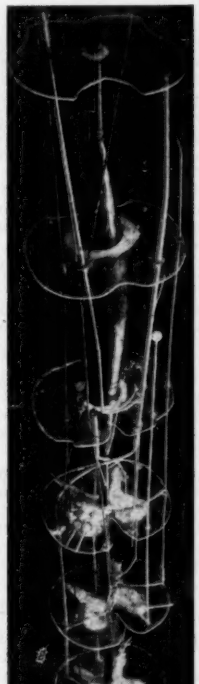
MANY anatomy schools at home and abroad have three-dimensional models of the central nervous system, whose use in teaching neurology needs no stating. These models often have the disadvantage that they are horizontal, not vertical; and the further disadvantage that the courses of nerve-fibres are indicated by threads or thin wires. Moreover, they are constructed to scale; consequently, the student cannot take in the sweep of any one tract at a glance. Lastly, the position of the central neural canal and its encephalic extensions is usually not shown. The following robust model has been designed to avoid these drawbacks.



The model.

Six anatomical levels are represented by 'Perspex' sheets cut to the outline of magnified cross-sections of (1) midbrain, (2) pons, (3) medulla, and (4–6) the spinal cord at three levels. The sheets are mounted on a length of $^3/_4$ in. tubular steel set in a heavy base. The tube indicates the central canal which, at hindbrain level, is represented by a "fourth ventricle" constructed from sheet aluminium.

A bundle from each of the main neural pathways is indicated by a distinctively coloured welding rod which perforates the perspex. Where several pathways converge—for example, upon internuncial or lower-motor-neurone groups—the "common path" is stippled to indicate the composite origin of its impulses. Nerve-cell groups are depicted by nuts bolted to the perspex sheets where necessary. The grey matter is shown by magnesium-sulphate crystals; these adhere to a colourless cement painted on the sheet.

Although the general topological relationships are correctly shown, rigid adherence to anatomical proportions is deliberately avoided. The result is a three-dimensional diagram in which axon bundles and nerve-cell groups are the structural units.

The model is 6 feet high and is used to greatest advantage in teaching small groups, for whom it was primarily designed. Its applicability to clinical neurology, however, is also obvious.

Reviews of Books

Biochemical Disorders in Human Disease

Editors: R. H. S. THOMPSON, D.M., professor of chemical pathology, University of London; E. J. KING, D.SC., F.R.I.C., professor of chemical pathology, University of London. London: J. & A. Churchill. 1957. Pp. 843. 90*s*.

BIOCHEMISTRY is so rapidly invading every aspect of the biological sciences that all the old concepts of physiology and stereotyped pathology are being revised. So much is clear from this book, written by thirty-one knowledgeable men and women, stimulated, supported, and drawn together by two experienced editors.

In part the approach is along lines familiar in all medical textbooks, and some of the chapters deal with the organs and organ systems of the body. Thus, there are chapters devoted to the gastro-intestinal tract, the liver and biliary tract, the muscles, the kidney and genito-urinary tract, the adrenal glands, the connective tissues, and so on. Where, however, the present state of knowledge or the feelings of the authors suggested it, the chapters have been written round the biochemical abnormalities. Thus we find chapters on diabetes mellitus and hypoglycæmia, disorders of nutrition, the porphyrias, the glycogen-storage diseases, and the lipidoses.

These little problems of presentation, and indeed the whole book, have been coördinated by the splendid subject and author indexes which the editors have provided, and the reader who is still not satisfied will find plenty of references to original papers at the end of each chapter. There are no sections devoted to the diseases of pregnancy or of children, though some aspects of pædiatrics are covered by the chapters on bones and faulty amino-acid and hæmoglobin metabolism and by the short note on Rh incompatibility.

The section on the nervous system shows (and quite simply too) the inroads that biochemistry is making into the hidden secrets of the brain. There is also a chapter on hypertension and there might well have been one on the heart and heart-failure, or on the circulatory system, and perhaps another on the water compartments of the body.

Professor Thompson and Professor King have scored a magnificent success: their book is undoubtedly one to buy rather than borrow.

Medical Ethics

A Guide to Students and Practitioners. Editor: MAURICE DAVIDSON, D.M., F.R.C.P., consulting physician, Brompton Hospital, London. London: Lloyd-Luke. 1957. Pp. 165. 20*s*.

THE subjects discussed in this symposium have been chosen largely as the result of suggestions made by a medical student: for example, the care of the dying, the management of the hopeless case, the information that should properly be imparted to a gravely ill patient (or one about to undergo a serious operation), the doctor's responsibility to his own family. Lord Cohen of Birkenhead writes on the doctor-patient relationship, and the Lord Bishop of Durham on Medicine and the Church; and Sir Heneage Ogilvie, Dr. Hugh Clegg, the Registrar to the General Medical Council, and a barrister-at-law make valuable contributions. The book's final item is an able account by Dr. Douglas Guthrie of the Hippocratic oath.

With the State now such an active and sometimes obtrusive partner of Medicine, it is more than ever necessary to identify and review the principles and problems of medical ethics, morals, and even etiquette. In a world of rapidly changing values, the medical profession should be more hesitant than ever to abandon any of the manifestations of its traditional ethos. For this reason alone, there is clearly a need for a book of this kind, and the editor and his colleagues have done their job well.

Imagination and Thinking

PETER MCKELLAR, M.A., PH.D., head of psychological laboratory, University of Sheffield. London: Cohen & West. 1957. Pp. 219. 21*s*.

Dr. McKellar's interest in hypnagogic imagery has led him to consider the part played by images in the mental life of healthy and psychotic persons. He has reviewed an extensive literature, starting with the study of associations and ending with what some people call "psychopharmacology." His chapters on abnormal thinking and on the processes of creative and scientific thinking are the most interesting; and, though they contain nothing that is particularly new, they serve to bring together much information scattered in psychological and other journals. Rather oddly, one of the chief sources examined in chapter 9, on "works of art as thought products," has been the introspections of Miss Enid Blyton, a writer whose prolific output—several hundreds of books, Dr. McKellar tells us—perhaps falls short of the standards required in a work of art.

Clinical Use of Radioisotopes

A Manual of Technique. Editors: THEODORE FIELDS, M.S., assistant director, radioisotope service, Veterans Administration Hospital, Hines, Illinois; LINDON SEED, M.D., director of isotope laboratory, Augustana Hospital, Chicago, Illinois. Chicago: The Year Book Publishers Inc. London: Interscience Publishers. 1957. Pp. 455. 72*s*.

THE increasing availability and widespread use of radioactive isotopes in many branches of medicine have naturally encouraged the publication of several books describing the clinical use of these new substances. This manual describes techniques that may be applied to routine clinical use. Little mention is made of the action of ionising radiations on living cells. There is a useful summary of Dr. Marshall Brucer's investigation on the standardisation of measurements of thyroidal uptake of radioiodine, and the chapter on radioautography (by Dr. P. J. Fitzgerald) is particularly notable.

Adequate references are given and special sources of information are listed. Health hazards and radiation safety precautions are adequately described, and the various relevant American regulations are given in detail. The emphasis on practice in that country may reduce its usefulness here, but it provides an adequate guide to the isotopic techniques that can be used in clinical medicine.

Instinct in Man

In the Light of Recent Work in Comparative Psychology. RONALD FLETCHER, B.A., PH.D., lecturer in sociology, Bedford College, University of London. London: Allen & Unwin. 1957. Pp. 348. 40*s*.

SINCE Harvey wrote of "a connate genius or disposition" many thousands of words have been written about instinct. Dr. Fletcher has tried to integrate the theories about instinct of Charles Darwin, William James, Lloyd Morgan, L. T. Hobhouse, William McDougall, James Drever, and Morris Ginsberg with Sigmund Freud's psycho-analytical theory and the more recent theories of Lorenz and Tinbergen on comparative ethology. To do this he has to defend the earlier theories against their critics over the years, so as to be able to use them in his final synthesis of what he calls the contemporary theory of instinct. The reader will have to decide for himself whether Dr. Fletcher has successfully proved his theory or not. The preliminary analysis of the earlier theories at any rate forms a valuable and handy reference book.

Manual of Pharmacology. (8th ed. Philadelphia and London: W. B. Saunders. 1957. Pp. 1535. £7).—Prof. Torald Sollmann's book has become one of the classics of pharmacology. The new edition contains a substantial amount of revision and addition which emphasise the sweeping advances which are being made in this subject. Unfortunately, in some sections description of recent findings have been added piecemeal, resulting in a mass of isolated facts with very little attempt at integration. Furthermore, in places, the space allotted to various drugs bears little relation to their pharmacological importance. In spite of these criticisms, "Sollmann" remains a very valuable book to those working in pharmacology, for it contains a tremendous number of facts about every aspect of drugs and their use, and as a pure reference book it is unbeatable.

Spot Diagnosis (Vol. 3. London: Harvey & Blythe. 1957. Pp. 140. 10*s*. 6*d*.).—The clinician who wishes to test his acumen in a wide variety of disorders may turn to this book, compiled by the editors of the *British Journal of Clinical Practice*. 101 photographs each pose questions which are answered on the next page, and a series of clinical histories is appended to provide further torment.

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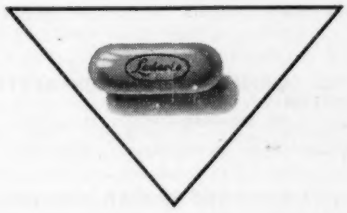

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THE LANCET
LONDON: SATURDAY, AUGUST 31, 1957

Evolution of Medical Education

REFLECTION as to what is of genetic and what of environmental origin is a valuable prelude to the treatment of any condition—and it is an exercise particularly relevant to the affairs of medical education today. Dr. CHARLES NEWMAN has therefore rendered a conspicuous service by his clear elucidation of the background of medical education in a scholarly book [1] which has just been published. It makes a fascinating story for all who profess an interest in medical education—whether those two words mean to them the whole precarious future of medicine or only their personal, unalterable, and quite self-satisfying ideas on teaching. The reformer and the reactionary can both find solace, guidance, and inspiration in the experiences of their predecessors.

To those who have spent much time on curriculum committees it is encouraging to learn not only that the passing of the Medical Act of 1858 was "a great relief to moderate-minded persons who were utterly tired of the long-protracted tussle," but also that it was not passed as a "result of exhaustion." "The House seemed the more interested as it learned, by continued tuition, to understand the subject more thoroughly." Admittedly it took the House some twenty-five years and 15 abortive Bills and several committee inquiries before it came to this understanding. After this it was able to pass an Act which allowed the improvement previously made by the profession itself to continue, without immediate impediment. Absorbing though the story of this evolution is, it is not altogether a happy one, and Dr. NEWMAN's views on the present in relation to the past, given in excellent appendices to the major chapters, illustrate very clearly the high price that is now being paid for past improvement.

The outstanding gain in the nineteenth century was the absorption into medical education of clinical science—"the recognition of physical signs and the resultant scientific inductive attitude to diagnosis." This far-reaching reform was achieved in only twenty years, 1835–55, and was "brought about by the profession itself, of its own initiative, motivated by its own conscience, organised by its own intelligence." The resulting educational change necessitated organised hospital medical schools. "'Walking the hospitals' was converted into a discipline in which the student took the active, not the passive, part, worked rather than listened, was educated rather than instructed." There was, however, loss as well as gain. The physical sign became all-important, just as the history had been in 1800. For at that period, as Dr. NEWMAN puts it, "Medicine (before the development of morbid anatomy directed attention to the physical processes and ultimately to the signs these produced in the living) was social medicine and the medicine of disordered physiology, which is what the most advanced thinkers are trying to make it today." The important thing in 1800 was "what the patient thought" about his trouble. "The important thing became later what the doctor found, and today may even be, rather, what someone else reports from the laboratory. The gradual eclipse of the patient is a warning to be observed: it carries a lesson for the future." The opportunity to make of history and examination one indivisible whole, and of the patient a whole man, was lost; though it was not until the early 20th century that German influence developed the fetish of the physical sign and the separation of man into physical parts. As for the nineteenth century, Dr. NEWMAN assesses the achievement of the profession, both scientific and educational, under French influence, as "creditable in the highest degree." The results were, however, offset in the second half of the century by intervention from without, which "warped the educational process into undesirable paths." The new thorough clinical education was transformed into a training for general practice.

By 1900 the aim of medical education had become the production (by the time of qualification) of a "safe general practitioner," and has remained so, unchallenged, until recent years. Thus, as Dr. NEWMAN shows, was born the "curriculum," that dreadful timetable substitute for education, from which it is still so difficult to break away. Comprehensive, a conglomerate arrangement of all pieces of knowledge and technique considered "useful," it has gone on growing ever since. It is now customary, therefore, to think that very little has ever been dropped from medical training. Dr. NEWMAN makes it very clear that the most important thing that has been dropped is education itself. "The physician of 1800 had certainly had an education calculated to make a scholar, a wise man and one competent to become, if not to be, technically adequate for his time." It is true that this did not apply to the same extent to the surgeon or to the apothecary. They received a more technical training, but the first was primarily a technician and the second was "fundamentally a shopkeeper." In contrast to this state of affairs, by 1900 all students of medicine were receiving a training calculated to make them safe, on the day of qualification, to practise any branch of the profession on a suspicious public. The aim had changed: achieving the new aim did not merely result in dropping cultural education in favour of the acquisition of useful knowledge; it meant abandoning the principle of education and adopting a curriculum instead. "The whole matter became one of syllabuses of useful knowledge and examinations." Though accepting that some of this change must have been an inevitable passive consequence of the increase in technical knowledge, Dr. NEWMAN claims, that most was due to positive action—to "reform." He recognises only two possible processes by which reform can be effected: "Those concerned may spontaneously improve things, putting their own house in order, on a basis of reason and in a quiet, slow pedestrian way, a process of internal reform. Or more conscious reformers may grapple with improvement in fields outside their con-

1. The Evolution of Medical Education in the Nineteenth Century. By CHARLES NEWMAN, M.D., F.R.C.P., dean of the Postgraduate Medical School of London. London: Oxford University Press. 1957. Pp. 340. 30*s*.

cern, correcting the faults of others, under an emotional stimulus, by the exciting large scale processes of agitation and legal reform."

For the sad change in aims and method of medical education, to which we are heirs today, Dr. NEWMAN blames the forces of agitation and legislation, arising primarily outside medicine and activated by the desire to prevent quackery and by the Victorian penchant for organised examination. He does not blame the General Medical Council specifically, though he points out how sorely it was tempted by the prevailing faith in examinations, and describes how it did indeed endeavour to secure a national qualifying examination. Unfortunately the Medical Act of 1886 which finally removed the threat of the "single portal" (and the "restricting, regularising and unifying influence it would have exerted"), also "confirmed the triumph of the idea of the 'safe general practitioner.'" "For this the Council was only partly responsible: it would have had to be very strong to steer the profession against the current of public opinion. The formulation and adoption of that ideal was one of those great water-sheds in medical history, of which the invention of physical signs was another example in the past century and the acceptance of payment for services rendered an outstanding one in this." At all events, the past century ended with medicine "again settled"—as a system of diagnosis, based mainly on the elucidation of physical signs, as a system of pathology based on purely physical science (morbid anatomy, bacteriology, and the beginnings of biochemistry), and a system of treatment which attempted to counteract the physical causes of disease. The doctors were also settled, no longer in the old "orders," but as general practitioners assisted by physicians and surgeons. Moreover, medical education was settled, with a new aim and a new method, and with a system of examinations which had already taken the wrong direction, primarily owing to the "insistence on external examination," invented as the Victorian remedy for favouritism but "unlikely, ironically enough, to be the most fair for the candidate." Since that time, in the past fifty years, medicine has again made a change in itself, by the development of laboratory sciences as the basis of diagnosis, and by the application of chemistry to physiology and in therapy. "What," Dr. NEWMAN asks, "will be the next steps, which will occupy the rest of this century and make the established medicine of A.D. 2000, and the educational system appropriate to it?" The elaboration of laboratory method was the triumph of yesterday, and he hints that "the understanding and control of the mind and of the mental aspects of all diseases" will be the new growing-edge of medicine.

This carefully documented book exposes with great clarity the lessons to be learned from the history of medical education. Possibly, however, its greatest value lies in this challenge of its closing paragraph. Dr. NEWMAN implies that evolution (in the hoped-for absence of revolution) will continue to be the means to progress—that periodically a fresh cycle of events will stem from a new advance in medical knowledge. Is this in fact likely to be so? Granted that so far this century there has been "a curious cyclic repetition of history," it cannot be assumed that this cycle is yet completed—nor that the next cycle will start, like the last two, with advance in medical knowledge. Dr. NEWMAN claims that the evolution of medical education in the latter part of last century was due to intervention from "without." But this intervention surely arose because scientific advance led to a new education, and both together altered the pattern of medical practice, by producing the general practitioner. He had never existed before, but he had to be created to enable the new medicine to be practised. Once he was created, legislation altered education into training, and then "fixed" this training—so producing the settled order of 1900. Medicine has indeed advanced again, but this time it has not (so far) produced a change in education by internal reform, nor has it led to a clear change in the pattern of practice. This is not surprising, since the rigidity previously imposed on the structure of medical education has largely prevented its reform from within. Moreover, the pattern of practice is not free to change as it was in 1850, for its outward structure has been fixed by legislation in the National Health Service. The tide of medical advance (whatever its direction), unaided by a change in education, is powerless to alter this pattern: it can only wash away its meaning—and this it has done. It seems a little sanguine, therefore, to expect that progress will, or can, still be made by evolution—even in the completion of this cycle. True, within this past year medical education has been freed from many of the old shackles [2] and it is now possible for it to find its way by internal reform and by experiment, as Dr. NEWMAN so firmly advocates—forwards to catch up with the change in medicine and backwards, we hope, to recapture the element of university education. It will then again be able to pass on the advances of medicine to professional practice; but it will be powerless to alter the outward pattern of that practice, for this can be done only by further legislation. Conversely, no ordained change in professional organisation can be made effective without the existence of an educational process appropriate to it. For medical education is the vital link between medicine and its practice: in this lies its importance, its power, and its responsibility.

Perhaps, therefore, the purpose to which medicine is put in the future is less likely than in the past to evolve slowly from advance in knowledge. Indeed, its new purpose may well be prevention of disease rather than cure; for prevention is rapidly becoming economically the most attractive aim. If so, then the historian of 2050 will have a very different tale to tell. We hope that he will record how, by experiment, a new pattern of medical practice was developed; and how medical education prepared doctors to prevent rather than cure disease. He will presumably record a new method and a new site of education: a new method because, in the apparent absence of a strong leaven of teachers already actively engaged in prevention, it seems impossible to use the traditional and current method—that of passing on to students what teachers do themselves (perhaps a new method will be made possible by applying "understanding and control of the mind" to the study of learning); and a new site of education because the traditional hospital medical school is not naturally fitted to be the home of preventive medicine.

2. See *Lancet*, 1957, i, 1178.

Finals

SEVERAL universities have lately altered the form of their final examinations in medicine, aiming both to increase their accuracy as tests and to improve their influence on education. If they have done nothing else, these changes have produced new evidence of the unreliability of the traditional type of written paper. It is still true that hundreds of medical students fail their finals every year, but it becomes increasingly less probable that this is simply the outcome of poor selection and poor education. A particularly welcome change, therefore, is the new form of written paper which was introduced in January into the final examination in medicine for the English Conjoint diploma. Instead of two papers each requiring essay answers to five out of six questions, each paper now serves a specific purpose. The first three-hour paper is concerned with testing that factual knowledge which every student should have. It consists of ten questions each subdivided so as to require a lot of short answers (the questions, it should be emphasised, are not of the multiple-choice type used in America). The paper is headed "credit will be given in this paper for essential facts *briefly* expressed." All the available evidence suggests that such a paper should reduce examiner error and improve the examination as a test of factual knowledge.[1-3] The second paper (also of three hours) is concerned with testing the candidate's ability to think, and with encouraging method of thought in students who are not yet candidates. It offers six subjects and requires an essay on any two (or more recently three). It is headed "credit will be given for knowledge of facts and for ability to discuss their significance."

The pass-rate in this examination has risen since the new papers were introduced, but no conclusions can be drawn from this rise. No doubt the Conjoint examinations could be used for planned experiments (they have the peculiar advantage that they can be taken by students of any school and are often taken in addition to university examinations); but the recent changes were not introduced as an experiment. They were made because sufficient evidence has now been gathered from controlled experiments to show that they are a necessary improvement. The first paper in fact arises from the desire of responsibly minded examiners to avail themselves of advances in the technique of examining. This paper by itself could, of course, be criticised because it encourages the acquisition of purely factual knowledge, though it is unlikely that ten questions covering the whole field of medicine to be answered in three hours encourage the memorisation of fact any more than ten questions to be answered in six hours. They might prompt the student to memorise widely scattered superficial facts; but it is clear that the questions have been devised very carefully to cover depth as well as width, as three consecutive examples illustrate: "List four physical signs of an established lesion in the: right internal capsule, posterior columns, cerebellum, third nerve, cauda equina"; "Explain how patients with cirrhosis of the liver may develop: œsophageal varices, ascites, jaundice, œdema, spider nævi"; "Give five methods of producing diuresis, and indicate briefly the mode of action in each case." A complaint has been heard that such questions are too easy for the candidates—though the examiners have found them far from easy to set. At all events, this paper is not on its own. It is balanced by the essay paper, which is thus freed to become a far more satisfactory test of ability to think than were the old short essays, and which may perhaps impress on students "that after six years of University education we expect them to show the examiners, in reasonably literate terms, that they are capable of constructive thought on some aspect of medical knowledge."[4] A combination of objective and essay papers, therefore, has much to recommend it, and Dr. LENNOX and his colleagues, who, on p. 396, record their experiences with such papers in pathology and bacteriology class examinations, conclude that a combination of the two gives a better measure of the students' knowledge and abilities than either separately. In his thoughtful essay at the beginning of this issue, Mr. PATEY discusses ways of improving the final examination, and he points to an added advantage of giving candidates a bigger choice such as the new essay paper offers—namely, the examiners can set questions which they may not necessarily expect to be widely answered but which draw attention to subjects worthy of study. Previous examination papers are popular reading with students and, by this device, they may be led to profitable interests outside the range of the old-style examinations.

Unfortunately the Conjoint examinations are not well placed to exert an improving influence on education at the moment, though they could exert an adverse one. At the present time they are taken by two main groups of students—those who have failed internal finals and a much larger group who fear that they may fail. The education of nearly all the candidates is, therefore, conditioned far more by the examinations of their university than by those for the Conjoint diploma. Nevertheless, we hope that the lead given by the Conjoint examiners in medicine will be followed by those responsible for other examinations which do have a profound influence on the educational pattern in many schools.

Why Medicine?

WHY does the little boy who wanted to become an engine-driver at six and a space-man at twelve end up as a medical student at eighteen? "Why should anyone," W. B. BEAN ruefully wonders,[5] "wish to enter a career to which the approaches are difficult, the apprenticeship full of trouble, the work long and hard, and the goals distant—at a time when science is at the upper end of the see-saw and respect for medicine at the bottom?" There are of course an infinity of superficial reasons. As in all of life's major decisions, emulation plays a part—whether our heroes are real or illusory, or whether we set out to emulate their goodness, their wisdom, or their worldly success. Some follow in their fathers' and grandfathers' footsteps because they feel that this is

1. Hartog, P., Rhodes, E. C. The Marks of Examiners. London, 1936.
2. Hartog, P., Rhodes, E. C. An Examination of Examinations. London, 1935.
3. Bull, G. M. *Lancet*, 1956, ii, 368.
4. Platt, R. *Ibid*, p. 461.
5. Bean, W. B. *Arch. intern. Med.* 1957, **99**, 847.

their foreordained path; or because it seems the most sensible thing to do; or because they cannot think of anything else. Others make their choice as an escape from parental pressure: to them even medicine may seem preferable to the Law, the Church, the Army, or the family business. There are those who seek adventure, and those who seek security. To some extent we all drift. And somewhere, somehow, chance always takes a hand. But deeper than such personal motives, BEAN detects greater forces at work. They are altruism, curiosity, and a search for power.

Altruism is an unfashionable virtue. The candidate who professes that he is driven into medicine by a burning desire to succour the sick receives a suspicious glare from the chairman of the selection committee; and on the hospital boardroom there is apt to descend one of those uncomfortable silences when members clear their throats, blow their noses, and draw little monsters on the edges of their blotting-paper. It is impossible not to sympathise with them: we are all dimly aware that charity is inarticulate and youthful idealism unselfconscious; and that modesty is the art of letting others find out for themselves how charitable and idealistic you are. But though the committee may rightly suspect that the candidate is a fraud or a humbug, they also feel—some may even have an inkling from personal experience—that, as BEAN puts it, "the virtue of altruism still lives today, without press agent and ballyhoo, as a force leading youth into the profession of medicine." (But sympathy for the selection committee is tempered by the thought that if, after twenty, thirty, or forty years in the profession, they are still fishing for a simple solution to the question of why anybody "wants to become a doctor," they deserve a fishy answer.) It is almost equally difficult to pin down curiosity as a major force that makes young people want to take up medicine. Like altruism, "a simple wonder at the marvellous and strange ways of nature is an aspect of man which sets him apart from his fellow-creatures. What forces are there behind the mystery of generation, and growth, and life, and death? What of the workings of our bodies, the meaning of health, the processes of disease? . . . Research in medicine offers the thoughtful and curious person a challenge because of the infinitely various complexity of its problems. Its intellectual satisfactions are great. It permits one to deserve the ultimate accolade of a thoughtless age, the brevet of 'egghead.'" [5] The third, and much maligned, of BEAN's motives is the search for power. Without some power, the best intentions remain purely ornamental; but if power, once acquired, is allowed to become an end to itself, medicine can become big business—often to the patient's disadvantage.

Before the war medicine was a career open in the main to those whose parents could afford it, and probably the predominant motive then lay in the gregariousness of the individual, a liking of people leading to an interest in them. Today recruits come largely from a different group. A Gilbertian situation has arisen, since most of the country's doctors are now pre-selected at the age of 10 or 11; for unless a child wins a grammar-school place at that age he has little chance of getting to a university later; thus, "late developers," who sometimes become excellent doctors, are lost to the profession. Students are for the most part selected from those who can pass the General Certificate of Education at advanced level in the appropriate subjects and whose parents' income is below £2000 (equivalent to £800 in 1939). When the parents' earnings are over £2000, there is no help to be had from county or State grants, and few parents with more than one child can contemplate paying for medical education, whatever their income. Thus, the social group which supplied most doctors before the war is today largely excluded from the field of recruitment. The bulk of medical students now come from the lower income groups, more so in the provincial universities than the London schools. Though there are still those within this group who make their choice solely from a sense of vocation or because they like their fellow-men, there must inevitably be more emphasis on medicine as a means of earning a living; when parents foresee that their child is likely to pass the G.C.E. at advanced level and that he may win the prize of a university career, many of them naturally think of medicine, attracted by what seem to be its great financial rewards. There is no vice in this; but it may produce doctors who are cleverer but have less natural interest in people, and whose contacts may be limited by the hard earnest grind towards success, so that, however well-trained, however great their specialised knowledge, they may lack understanding and that seed of independence which was better able to flourish in those brought up in easier circumstances.

Medicine is not alone in this change, and we should like to see the fall of the financial barriers which now prevent many young men and women of high promise from reaching a university, even though they have demonstrated their merit by satisfying the educational standards for State or county grants. To deprive them of this aid is to waste what is potentially one of the richest of the nation's resources.

Annotations

SPECIALISTS TOO SOON?

IN the United States, most medical schools insist that their pupils have four years of higher education, usually including arts subjects, before beginning their medical studies. In contrast, many students in this country are encouraged to put their first medical examination behind them before coming to university, which means that they begin to specialise as early as 15 or 16. At the very moment when the intellect is awakening—when the future doctor, for instance, reaches the sixth form—the mind is crammed with facts from the narrow range of physics, chemistry, and biology. Even a nodding acquaintance with the great outer world would help the future specialist to realise the extent of his ignorance outside his own subject; and the wider view would also encourage his colleagues to be more critical of the expert's pronouncements.

Dr. S. E. J. Best, headmaster, and Mr. I. G. Jones, second master, of Doncaster Grammar School, have described [1] their attempts to counteract overspecialisation (in science, arts, or other fields) in an essay in *The New Scientist*, a journal which is doing much to translate the scientist's message into simpler terms. "Perhaps the most important educational task of the present time," they say, "is to fit the non-scientist for life in a scientific

1. Best, S. E. J., Jones, I. G. *New Scientist*, Aug. 1, 1957, p. 12.

age, and the scientist for a civilisation which is still that of the whole man, and does not have its alpha and omega in the laboratory or the machine." Sixth-formers at Doncaster spend a substantial amount of time in "general studies," which include a course on the history and philosophy of science, discussions of science in the news, demonstrations and visits, lectures, debates, and (perhaps most important) papers prepared by the boys themselves. Classical scholars have described the mechanism of a railway engine; and arts boys, with more facility perhaps in the use of language, have checked the scientists in their use of jargon and insisted on plain speaking. An English course for the science sixth, designed to foster simplicity of expression, has led some boys to take a wider interest in literature.

When such courses are suggested—whether a period in arts at the university before starting medicine or more time for general subjects in the sixth form—they are often pronounced economically impossible, and many specialist teachers ask where the time is to come from. These seem short-sighted objections. At Doncaster, there has been no sign that academic attainment has been affected. Most of the boys are particularly keen to do well in their examinations in the academic subjects, because local-authority grants depend on their results; but, though 10 of the 38 weekly periods are now spent in general studies, no falling away has been noted in any boy's performance in his "A"-level subjects. We hope that more schools will make experiments on these lines.

THE UNDERGRADUATE STUDENT AND GENERAL PRACTICE

LAST year the British Medical Students' Association published a survey (carried out by Mr. P. G. Wood) of schemes whereby senior students are shown the work of a general practitioner. There are four types of scheme:

(1) Two universities operate their own health centres.

(2) Eight medical schools arrange for students to reside with general practitioners (some offer a week's residence to a few volunteers; one school requires a compulsory three-week period for all students).

(3) Ten schools have schemes for sending interested students to surgeries, and in another school such attendance is compulsory.

(4) One school arranges for volunteers to spend a day with a general practitioner.

The purpose of introducing undergraduate students to general practice has not always been clear. At one time formal instruction in this branch of medicine was advocated, but lately there has been more emphasis on showing the student something of the work and life of a family doctor so as to give him a better perspective and perhaps a stimulus to enter general practice. Some schools (for example, where three weeks' residence is compulsory) presumably still aim at providing vocational training too. In all schools where a large panel of family doctors is used, the individual doctors must vary widely in their purpose as well as in their methods of teaching.

Whatever the aim, however, the experience is, for most students, unlike any other in their clinical curriculum. The surroundings—surgery or home—are novel teaching-grounds, and nowhere else is a student alone with one teacher for hours or days on end. The patients often have complaints of a different nature and severity to those the student has seen previously in hospital, and the methods used are not always clearly related to those the student has formerly been encouraged to practise. It is not surprising, therefore, that the experience engenders powerful reactions in students. Most find new interest and inspiration, but a few undoubtedly become somewhat disorientated and may be over-impressed with the difference between their own and the practitioner's methods. A small number may be so discouraged that they are turned away from general practice, and even from medicine in any clinical form.

It is clearly important to assess the value of this educational project. As four different systems are now in use it should be possible at least to discover which is the most beneficial and how much time should be given to it in a balanced undergraduate curriculum. For a thorough evaluation all the reactions of individual students must be taken into account, but the B.M.S.A. survey was much more limited in scope, the success of each scheme being assessed largely from the views of the dean or another teacher. Students are well placed to obtain and record the reactions of their own number to experiences offered to, or forced upon, them, and we hope that a future survey will range more widely.

SCIENCE WITH A CAPITAL S

Descartes said that good sense was, of all things among men, the most equally distributed; and since everyone thinks himself so abundantly provided with it, even the most hard to please seldom wish for a larger measure. In a book just published,[1] Dr. Magnus Pyke tries to approach Science with common sense, with results which may not please all scientists but which are never dull.

Science is not a subject so much as a way of thinking, and the behaviour and ideals of scientists often seem incomprehensible to others. Moreover, as Pyke puts it, "the man in the street, and even more particularly the politician in the House, is not interested in Science for what it is. . . . To the ordinary citizen, it is often merely a way of doing practical things or making economically important goods suitable to be exports for hard cash. The urgent and clamorous search for more and more scientists by the industrialists of Europe, America and Russia is not a search for people who can consider and think, but for those who manufacture." The scientist may have very different aims: to him the problem can be all, and he pursues it with the single-mindedness of the crossword-puzzle fiend. Often the problem may seem remote from reality. There is a story of a man who was looking for something under a lamp-post, and in reply to a friend's question, he explained that he dropped his wallet a hundred yards farther back. "Then why are you looking here?" exclaimed the friend—to which he replied that it was dark back there and light under the lamp. Those who have watched scientists at work will from time to time have seen a situation not altogether different.

The scientist, too, has his own standards of assessing the merit of a piece of work. Thus, the development by Dr. Jonas Salk of the poliomyelitis vaccine is regarded by the public (with some justification) as one of the great advances of the century: to the scientist, however, it was a fine piece of organisation rather than a brilliant new stroke, since it embodied no fundamentally novel ideas. On the other hand, the public knows little of the elucidation of the structure of vitamin-B_{12} by Mrs. Dorothy Hodgkin or of insulin by Dr. F. Sanger, both rightly held to be exceptional scientific feats. This raises the question of the motive of research-workers, and Dr. Pyke is at pains to pour icy water on the idea that the research-worker does his job to benefit humanity. Here we are on slippery ground, and the critic who tries to define other people's motives often does little more than reveal his own. The motives of the research-worker are complex: but though some may seek the acclaim of the general public while others eagerly aspire to the more sophisticated praise of their colleagues, there are surely many for whom neither of these prospects is a powerful urge and who work with a quite different mainspring.

Apart from their influence on the material things of today, scientists are becoming increasingly involved in

1. Nothing like Science. By MAGNUS PYKE, B.SC., PH.D., F.R.I.C. London: John Murray. 1957. Pp. 172. 16s.

questions which carry moral values. Should the scientist always leave to others the decision of how and when to use his discoveries? Probably not, while the wide gulf remains between scientists and the general public. The scientist is still very much a high priest practising his mysterious rites, and encouraged to do so by a public interested only in the products of his endeavours. If people are to interest themselves more seriously in the philosophy of science, a good start would be to think of "science" *without* a capital S.

A GLASGOW VENTURE

EARLIER this year the University and the Royal Faculty of Physicians and Surgeons of Glasgow issued an advertisement for postgraduate courses "in general medicine, general surgery and the various specialties." The casual reader whose eye fell on this orthodox heading might well think "another comprehensive, intensive course of lectures." But in fact the announcement was about something rather different.

The feeling had taken root in Glasgow that postgraduate education by short courses and conferences was too episodic, and that it should continue all the year round; postgraduate students, therefore, are to be attached to clinical units for periods of three months. While they attend specialised lectures, their feet will be kept on the ground by work at the bedside and in the outpatient department. They will rub shoulders with, and be treated as indistinguishable from, the junior hospital staff doing clinical work; and they will lose thereby that sense of being a hanger-on which is disquieting to many postgraduates. Moreover, they will move out on occasion from their home unit and their home hospital to get a wider view of medicine.

The Glasgow scheme is in some measure a return to the prewar days when there was less formal postgraduate instruction, but when the young would-be specialist enthusiastically chose as his chief some stern taskmaster and spent long, if unsystematised, days in the wards and outpatient department. Deliberate self-exposure to more mature and experienced minds was then often a successful method of postgraduate study. But with every decade medicine becomes more complicated and the specialties more specialised, and the intensive courses, set up to meet post-war needs, have continued as a widely accepted pattern of peace-time postgraduate education. For the doctor returning from the Forces, with little time or money to spare, often with wide clinical experience but a more limited appreciation of the latest scientific niceties, didactic teaching is useful and effective; but it will not give him the climate which exists in a teaching unit and which is made up of the character and philosophy of all who work there.

TEXTBOOKS

"The modern textbook of medicine is dead except as a book of reference. The student has neither the money to buy it nor the time in which to read it."

This is not the disgruntled hyperbole of a rejected author but a remark by a distinguished teacher, and as such deserves examination. That all books cost "too much" is, of course, the opinion of everyone except authors, publishers, and booksellers; but actually the increase in their price, over that of 1939, is of the same order as most other increases. Nevertheless textbooks could certainly be cheaper in a more humble format. The French (who are at least as bookish as we are) would not admit that cheap paper in paper covers detracts from the dignity of the written word. Moreover, illustrations are costly and do not always illustrate. Students will learn far more of X-ray appearances from seeing them in the wards than from the selected examples which add a lot to the price of their books. Besides, photographic reproductions require heavy paper, and it is this rather than studious reading which calls for the substantial and expensive binding. As an experiment a publisher might issue a paper-bound "utility" edition of one of the popular textbooks, to compare its sales with those of the standard edition. Perhaps, too, it might be possible to prolong the interval between complete new editions by wider use of the device of annual supplements.

That the student today has no time for reading textbooks may seem astounding. Yet how many of us read "Osler" or "Price" from cover to cover? Such works of reference must aim at completeness: they must contain all the answers to all the questions within reason. To the uninstructed they are a pathless jungle. A future F.R.S. once remarked: "When I am at the bedside I understand nothing because I have not read my textbook. When I read my textbook I understand even less because I have not seen the patient." The symptoms and signs of a failing heart are more important than the therapeutic dose of triiodothyronine not only in practice but in the examination hall, but the responsibility for this message lies with the teacher and not with any textbook. At the same time there is probably a place for the book which makes no claim to completeness but which describes the essentials of medicine, as we know them today. A new candidate for this rôle is the lately published *Human Disease*[1] in which Dr. Clark-Kennedy takes on with notable success the gigantic task of providing a short and accurate account of human illness in a 260-page Pelican. He has written primarily for that busy reader, the intelligent layman, but, he adds, "my great hope is that this book will also prove of some value to medical students at all stages in their careers, and even possibly to doctors, providing them with a viewpoint of the wood before they get lost among its trees or, if already lost, a guide to regaining some perspective of medicine as a one and undivided whole." But what we had in mind was something written specially for medical students—short and inexpensive, and based on general pathology.

If the teacher we quoted is right, such a book would not diminish the sales of any other. There will still be room for the specialised works on neurology and cardiology and for those invaluable compendia which list the 17 (or is it 177?) causes of enlargement of the spleen. Most of us would be out of our depth from time to time without the larger works of reference to abate our ignorance, and these can hardly be too big.

RETIREMENT OF DR. ARCHDALL

THIS Saturday, his 73rd birthday, Dr. Mervyn Archdall retires from the editorship of the *Medical Journal of Australia*, which he has held for the past twenty-seven years. After graduating from Sydney University in 1907 Dr. Archdall turned, in 1909, to general practice, in which he remained, with a break for war service, until he joined the *Journal* as assistant editor in 1922. His years in general practice may partly explain the balance which he later showed in editorship. Under his hand the leading articles had a distinctive, and attractive, tone: scholarly but never precious, sober but never dull, sympathetic but always firm. Dr. Archdall has made time to edit other journals, and only lately he has initiated the medical monographs of the federal council of the British Medical Association in Australia. But his outstanding achievement has been with the *Medical Journal of Australia* itself, which he has made the focal point of much of the best new work in his country. Doctors in Australia and beyond have cause to be grateful for the standard he set and has so long sustained.

Sir CHARLES READ, president of the Royal College of Obstetricians and Gynæcologists and director of the Institute of Obstetrics and Gynæcology of the British Postgraduate Medical Federation, died on Aug. 21 at the age of 54.

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1. See *Lancet*, July 27, 1957, p. 176.

Before Our Time

RÂLES, RHONCHI, AND LAENNEC

Recorded by

A. JOHN ROBERTSON

M.D. Lpool, M.R.C.P.

After an evening with

ROBERT COOPE

B.Sc., M.D. Lpool, F.R.C.P.

PHYSICIANS AT THE ROYAL INFIRMARY, LIVERPOOL

WE chose an evening in the late spring and during the day opened the cottage and aired the rooms. We brought down an old table from the loft, built up a good log fire, and left a first edition of *L'Auscultation Médiate* in a conspicuous place with a borrowed copy of Andral's thesis, for Laennec to see his pupil's work. For the meal we ordered soup, chicken, and fruit, which would surely be familiar to any of our visitors, and with some hesitancy we added new potatoes to be fried in olive oil. We decided to wait on our guests ourselves, so that no-one should be there if our plans failed.

Dr. James Johnson Dr. P. M. Latham
M. Laennec Sir John Forbes

As the clock chimed seven we heard a noise outside—"le bruit d'une voiture qui roule sur le pavé," whispered R., who had just reread his Laennec. A small, rather tired-looking man walked briskly to our door, his cloak swaying behind him, and his long chestnut-coloured hair not hiding the high forehead or intense bright blue eyes. We took Laennec inside, and he sat down by the fire, coughing and wheezing a little, but looking around him with curiosity. I felt that brandy might be more in his line than sherry, and while I was getting it R. welcomed him, and thanked him for coming. "My thanks are due to you," he said. "There is much that I want to hear, and you must pardon me if I ask questions which seem too simple." After a few minutes Laennec glanced at *L'Auscultation Médiate*. "I see you have my book: do you still read it? And did you ever see my other edition, when I altered so many little things?" He seemed pleased when we told him we had, and while we were asking questions there was a knock at the door.

"My name is Johnson," said a distinguished figure with an Irish brogue, "and I edit *The Medico-Chirurgical Review*. I heard of your party, and would appreciate the privilege of reporting it in my journal." I took him inside and introduced him. "Not Dr. James Johnson?" said R. Johnson nodded. Laennec at once came forward and shook hands warmly. "It was kind of you to send me a copy of your review of my book," he said. "I particularly appreciated your comments that my 'style was concentrated and free from tautology and circumlocution.' These are not words I would have used myself, but I thank you just the same."

R. suggested that Laennec should talk to us over our meal. I went for our soup and was surprised to see a woman in the kitchen. She insisted on serving the meal and courtesied to Laennec when she went in. He looked at her for a moment. "Surely it is Mme. Lajoie? Was not little Henri-Alexandre in the Children's Hospital after his whooping-cough?" She nodded. "The doctor was so kind to us, and was so good to our poor boy, that my husband and I agreed that I ought to come and help you to-night." Laennec looked a little embarrassed. "Henri-Alexandre was only three and had such blue eyes. It was the first time that M. Cayol and I had ever seen someone who proved to have dilated bronchi. But I am digressing, for you were asking about my book." Mme. Lajoie withdrew and we put down our spoons and prepared for a long discussion. His eyes grew brighter and his hollow cheeks looked flushed as he went on:

"It was in 1816, the year after this cottage was built," he said, "that I saw those children playing with a plank, scratching it with a pin and listening at the other end. When I first made my cylinder it seemed as if the lungs within were speaking to me, yet it was an entirely foreign language. I worked hard in those years at the Necker, auscultating everyone, charting down the findings, and later examining the lungs to try to fit in what I heard with what I saw. At La Charité I had notes of over 400 patients, but no record of their chest sounds. I had to begin again."

He paused. "I hope I am not boring you?" R. reassured him, and I slipped to the kitchen where Mme. Lajoie was ready with our chicken. "I'm sure the Doctor didn't have this as often as he should," she said "He was just as poor as we were, and he never seemed to charge a fee."

The conversation came back to the book. "How did you manage to get your book out so soon after you used your new instrument?" R. asked. "It was hard work, my friends," came the reply. "Of course you must not make the mistake that some made, and think that I wrote only about my baton. All descriptions of the diseases and their pathology were from my own notes. I wrote only what I knew. But with the cylinder I was able to add signs, so that I could sometimes foretell what would be found if the patients died. There was much sifting of evidence before I could even suggest what the sounds were due to.

"No, gentlemen. The difficulty of time I overcame by working hard. But I found it very difficult to describe the sounds sufficiently clearly to give a fair idea to those who had never heard them; they were much more difficult to describe than to distinguish."

"Why did you choose the word râle?" I asked. "Not everyone agrees now what it means." Laennec had a ready answer: "You must remember that more than a third of all hospital patients had phthisis, and were very ill. In nearly all their lungs I could hear these rattling sounds, and so I used the word râle in a general way, since râles formed the majority of the sounds I heard." He picked up his book. "Surely I made it clear? 'On désigne communément sous le nom de *râle* le murmure bruyant que l'air fait entendre chez les mourans en traversant avec peine des crachats que les poumons ne peuvent plus expulser. A défaut de terme plus générique, je prends ce mot dans une acception plus étendue, et j'entends par *râle* tous les bruits produits par le passage de l'air, pendant l'acte respiratoire, à travers les liquides quelconques qui peuvent se trouver dans les bronches ou dans le tissue pulmonaire.'" He paused. "I did alter it later, and I admit that I had extended its meaning beyond that which one commonly gives it, but what else could I do? Have you a better word to suggest?"

R. answered immediately. "No, I haven't. In fact I quoted part of your description of râles in a book of my

own. It is with the various types of râles, such as rhonchi, that there is confusion." Laennec looked surprised: "I do not understand," he said. "I always used the word râle in my writings, but as I did my case-notes in Latin, naturally I translated it into the Latin 'rhonchus.' They are the same word, meaning the same thing. How can one be a type of the other?" R. turned to me, "I remember Nixon writing to the *B.M.J.* about that before the war, but he said that he could not find proof that M. Laennec meant them as the same."

Laennec had been turning over his pages. "Here you are," he said, "I gave a little about a patient . . . 'respiratio tamen benè auditur, praesentim infernè, cum roncho sibilante anticè, cum roncho canoro levi et mucoso ad radicem pulmonis.' I see that the printers did not spell rhonchus correctly, but I altered it in the next edition. And that reminds me," he continued, "I wrote a special little plea in the preface of that second edition, warning physicians not to talk about râles in front of patients, because it might upset them, since they thought the term meant 'death rattle.' To them it was as ominous as the word cancer. I said that when speaking, I always substituted the name rhonchus for that of râle, so that it would not frighten anyone if by chance they heard it."

"If I may interrupt," said Johnson, "I can assure you that in my journal and as far as I know in all others of that time, there was no question of any difference of meaning between those two words, which are synonymous. Our difficulty was in translating what M. Laennec wrote into English. I thought Forbes made a mess of it, and I had quite strong views on it at the time. Râle, as a primitive French monosyllable, has an exact analogy with our own expressive Anglo-Saxon word *wheeze*, which signifies to breathe with noise. As a plain person, gentlemen, the word wheeze appealed to me, and I used it simply to denote the sound produced by the act of respiration; its modifications were then expressed by the addition of qualifying terms. I thought it a better translation of M. Laennec's 'râles' than the more obvious and less delicate word 'rattle,' though Williams said rhonchus was more in accordance with the usual style of medical language."

Laennec looked rather impatient. "Surely, gentlemen, there should not be this difficulty over translation? If the English have no word for it, the Greeks certainly do, and it is ῥόγχος. If you cannot translate it, why not use ῥόγχος, râle, or rhonchus? I thought my difficulty would be in getting people to understand what râles were, not in how to translate the word." "Unfortunately there was a man named Forbes, M. Laennec," I said, "and he did create quite a lot of confusion. But since Dr. Johnson spoke of the various modifications of your râles, would you care to tell us about them?"

Laennec smiled. "I am not doing justice to your excellent chicken," he said, "but I am glad to tell you about my râles. There seemed to be four types at first, but later I added another. You must remember that there were only three years between the time I discovered the cylinder, and the publication of the book, so that naturally I did not get everything in first time. The four types were the 'râle humide ou crépitation,' the 'râle muqueux ou gargouillement,' the 'râle sec sonore ou ronflement,' and the 'râle sibilant sec ou sifflement.' My fifth one was the 'râle crépitant sec à grosse bulles ou craquement.' The first type, the crepitation, is easy to imagine, and I compared it with the sound made by salt when you roast it in an evaporating dish. You get the same sound when you press with your fingers on a lung filled with blood and air, and I found this sound quite characteristic in pneumonia."

Johnson intervened once more. "I'm sure you would approve of C. J. B. Williams's simile there, M. Laennec, because I know you met him at the Necker. He thought it could be tolerably represented by rubbing transversely between finger and thumb, a lock of one's own hair close to the ear." R. nodded.

"My next type," continued Laennec, who didn't show much enthusiasm either for Williams's name or for our interruption, "the râle muqueux ou gargouillement, was the gurgling noise made by air when it bubbled through accumulated sputum in the bronchi or trachea. You could often hear it without the baton, and I couldn't put it more plainly than to say it was the sound of the dying. It didn't matter whether the medium was mucus or softened tuberculous material—the sound was just that of air through fluid. If you heard it in the trachea it was so loud that it was as if the patient were beating the roll of the drum, and you might even feel the vibrations on the chest. I used to think it sounded like the wheels of my carriage on the paved streets of Paris." R. looked at me and murmured again "le bruit d'une voiture qui roule sur le pavé."

"You are now about to tell us of your next two types, M. Laennec," I said. "I am sure you will continue to make it clear, but you should know that there has been a lot of argument over your words."

"I cannot see why," he replied. "The râle sonore sec ou ronflement really explains itself, though it varied from a sleeping man's snore to the cooing of a wood-pigeon, and sometimes one might even think there was a bird in the patient's bed. At autopsy the minute bronchi did not seem the ones at fault; it was the larger or medium or dilated ones, and I thought the musical quality was due to alterations in the shape of the air-passages. They might be compressed by glands or tumours or local inflammation, but certainly the air channel must have had its shape changed, even if it were only by distension of the bronchial lining which narrowed the bronchial branch opening. I often made similar notes on my flute when I was at Nantes." He paused. "What is your difficulty? I know that I did not always find it easy to be sure about the exact causes of the sounds, for often they would change for some days before the patient died, and I had to get the chest open soon, and do everything for myself. Pathologists never bothered to trace out the bronchi for me."

"Pathologists have not changed, by and large," I said, "but we are not doubting your explanation. Our difficulty arises because it is hard to accept the cooing of a wood pigeon as a kind of rattle, and a rattle doesn't seem much like a musical sound. Certainly it is perfectly clear what you meant."

"The râle sibilant sec ou sifflement was hard to explain, but I thought it was due to a more or less complete obstruction in the tiny bronchial tubes. This dry sound again varied. Sometimes it was a prolonged whistle, and might be high or low pitched. Sometimes it was like the short shrill cry of the little birds that wheel over the waves and the rocks of my beloved Brittany." Laennec paused, and looked depressed. "It took me ten days to get to Douarnenez from Paris, and I had a terrible toothache for those four hundred kilometres. I was longing to hear sounds like that, and smell the sea, but all I heard for so long were my own râles."

We all waited a moment, and then I said: "Please complete the description, M. Laennec." He looked up and smiled. "I did not intend this to be a lecture," he replied, "but it is so encouraging to find people who are interested, and I always found foreigners more appreciative than our French students. The last type was the râle crépitant sec á grosse bulles ou craquement. This arose only on inspiration, and sounded as if you were blowing up a dried bladder. It crackled like subcutaneous emphysema when you listened to it, and I thought you got it in some kinds of emphysema, though it certainly wasn't common, and I wasn't sure enough of it to put it in my first edition."

He went on, "Now will you tell me how I have failed to make it clear?" There was a pause, and then R. answered, "You have not failed, M. Laennec. It is only that your words have become distorted by the passage of time." "But you have my book here?" came the swift reply. We looked at each other a little guiltily, and then we were startled to hear voices outside.

"But Sir John, I really cannot see why it was necessary for you to come." "Nor I you," came the candid reply. Johnson looked at us and scowled. "John Forbes. I'm glad he came late. He's editor of *The British and Foreign Medical Review*, but I didn't know he was knighted. The

other voice sounds like Ramadge's so you must pardon me if I don't meet him."

Two men entered, both quite confidently. "I'm Forbes" said one. "Good gracious—there's Johnson. Trust another naval man to be there first. I have only just heard about this party, and I think you may need me. I had a lot to do with these Frenchmen and understand them. Just you let me hear what Laennec says, and I'll tell you what it means." The man behind spoke up: "Ramadge is my name," he said. "I felt Sir John might need some guidance, and that I was the best man to give it to him."

Johnson shuffled away to a corner, and R. showed them to two of our vacant chairs. "I'm afraid our dinner is nearly over," he said, "but you are welcome to stay."

"I was always punctual myself," said Forbes, "but once I left the Navy I couldn't keep everyone up to scratch." He took the brandy we offered, and then said: "Now don't you let Laennec get you too enthusiastic about his stethoscope. It has some value of course, but I've always been doubtful whether it will ever come into general use. It takes a lot of time, and gives a lot of trouble to patient and doctor. Besides, it's a foreign habit. Its whole hue and character is foreign, and opposed to all our habits and associations." He gave a hearty laugh. "There really is something ludicrous in the picture of a grave physician formally listening through a long tube applied to the patient's chest, as if the disease were a living being that could talk to the fellow who listened."

Laennec had been quite quiet all this time, and did not seem to mind this noisy Scotsman. When Forbes paused for a moment, R. murmured to Laennec, "Wasn't it Broussais who asked you if you lived in your patients' chests?" "Yes, poor man," answered Laennec. "He was a flamboyant character, always wanting to do dramatic things, and never really succeeding. I think he may have been a bit jealous."

"Now I must tell you about my work," said Forbes. "James Clark, my friend since our schoolboy days, had been to the Hospital Necker and seen this stethoscope, so I thought I'd have a look at it too. I found that Laennec had written a book, but it wasn't just right for English readers. So I translated it and took the liberty of rearranging the work throughout. In this respect I consider both the author and the English reader as obliged to me, for without in the least altering either the facts of the pathology or the diagnosis, I have rendered them both much more accessible and placed them in a clearer, closer, and more connected point of view. Then there were the cases—needlessly and uselessly diffuse in the original, so in almost every instance I abridged them."

At this Ramadge intervened: "In my book those beautiful pictures and vivid representations of disease are given in all their perfection, as they came from the pen of the author, without the least mutilation or curtailment," R. was explaining all this to Laennec, who obviously could follow English quite well, but who was by now a little bewildered by these two intruders. As we were discussing Forbes's comments, Mme. Lajoie came in to clear the food away. "Excuse me," she said, "M. Laennec didn't have any 'cases,' he only had patients. If you went to Broussais you were a case for sure—just someone else for him to bleed or talk about. But M. Laennec would treat his people as human beings.

"Who is that woman?" asked Forbes.

"That is Henri-Alexandre Lajoie's mother," I replied. "Perhaps you will remember the little boy that M. Laennec wrote about?"

"What case was he?" said Forbes, and did not wait for an answer. "I must admit that several of the cases were too much abridged, but I still think my arrangement was very superior to the original. In fact, I endeavoured not to abridge but to condense the whole of the treatise, by the use of as concise a mode of expression as possible: and if I succeeded in my intention, my translation, I flatter myself, will be more valuable than if it had been strictly literal. A good deal of the original was written in a diffuse and verbose style by no means commendable in a work of science."

We knew that Johnson didn't agree with this, having already spoken of the "concentrated style" of Laennec, and we were by now all rather embarrassed, so I changed the subject slightly. "We have been discussing M. Laennec's book, and particularly the chapter on the 'bruits étrangers à la respiration et à la voix."

"You mean adventitious sounds," said Forbes. "I was very pleased with my translation of 'bruits étrangers' by 'adventitious sounds.' But what about the word râle? It really is very desirable that some name might be found for the phenomenon which would prove generally acceptable to English physicians. In my first edition, I translated râle by the nearest synonym of 'rattle,' but hardly anyone would adopt it. In my next edition I put 'rattle or rhonchus.' In my fourth edition I put just 'rhonchus' as a translation, and really prefer this, as did C. J. B. Williams. As a matter of fact, most people use the original French term 'râle' in this country, but there are several objections to its use."

"What did you call the various types of râle, Sir John?" I asked. "Did your names for these change with the editions too?"

"Naturally they did," came the answer. "Originally I said there were four types of rattles: first, the humid or crepitous; second, the mucous or guggling; third, the dry sonorous; and fourth, the dry sibilous or hissing rattle. Later I changed hissing to whistling, and I mentioned that the dry sonorous rhonchus was a snoring one."

Johnson saw his chance. "You only changed hissing to whistling because Williams said you were mistaken; nothing else would have made you alter the word you'd used from the beginning."

Forbes took up the challenge. "I didn't adopt your word 'wheezing,' anyway, and I used 'whistling' because people seemed to like it better. But let me continue. I eventually made out a neat little table of the rhonchi, into vesicular, bronchial, and cavernous, and I divided each into humid and dry. Let me write it for you."

Once more Johnson attacked. "You are going to write out Andral's classification," he said. "No doubt you had the opportunity of copying it from him, though with suitable 'improvements' of your own."

"It isn't any use being jealous," replied Forbes. "Nobody heard of Monsieur Laennec until my book came out. *The Edinburgh Medical and Surgical Journal* didn't even review the French book; they waited for mine, though I noticed they wrote of the different species of rattle or *râle*, when I particularly suggested rattle or *rhonchus*."

"You must admit," replied Johnson, "that my journal reviewed M. Laennec's book before you ever heard of it, and that I made it clear that râle in his book signifies what in this country is called the rattles—though, as I said earlier, I preferred the word 'wheeze'."

"I won't admit anything, replied Forbes, "except that your own journal became so much scissors and paste that I had to start one of my own to keep the profession up to standard."

R. intervened: "Gentlemen, I should tell you that your two journals later merged into one. It is surely a compliment to both your efforts that this happened?"

Before he could continue, there was another footstep outside, and in came a fashionably dressed physician. Johnson groaned: "Another Irishman."

"I'm Stokes," proclaimed the newcomer. "I heard you were discussing chests and knew that I would be welcome. It seemed to me that neither in the works of Laennec nor of Forbes have the accounts of the different signs obtained by the stethoscope been properly connected with that of the pathological state of the viscera to which they owe their origin. I

therefore wrote a book in 1825, and after describing each phenomenon, endeavoured to give a succinct account of the morbid condition producing it. I described the crepitating, the mucous, the sonorous, and the hissing râle. As there is not any English expression which would give a definite idea of the meaning attached to this word râle, I trust there is no occasion to apologise for its adoption."

"I can't think why the publishers ever agreed to pay £70 for that book," said Ramadge. Then he looked up at the ceiling and continued, apparently to no-one in particular, "Some of our hospital physicians have not hesitated to send into the world under the title of lectures and so on, books which are mere copies of Laennec's great work, disguised, no doubt as far as could be done, by change of arrangement and the display of an original title page. Andral and Collin both had their works stolen and used without acknowledgment."

Stokes looked quite cross. "I'll go if I'm not wanted," he said, and before any of us could stop him, he had disappeared. Ramadge continued as if nothing had happened: "In my translation I retained the word râle for two reasons. The first was that we should be saved the annoyance and confusion inseparable from the employment of various translations according to the peculiar whims of the individuals proposing them. The second was that the onomatopœia was decidedly in favour of the term râle, which in its very sound is more expressive of the ideas which it is intended to represent than rhonchus."

Johnson obviously didn't like Ramadge, and so interrupted him, ignoring his last comments. "Stokes was only 21 when he published that book, and I think it was a remarkable effort. It wasn't all original, but then most books aren't. We're all Irish, Stokes, Ramadge, and I, and I'm prepared to believe that Stokes's name will be remembered long after Ramadge's rudeness is forgotten. I expect you know all about Ramadge's troubles and why I won't meet him?"

Ramadge looked angry, and said: "Surely you aren't trying to bring up that trial again? You've lost it once." He glanced at Johnson, glared at us all, and snapping his fingers, he said "I don't give a damn for any of you, or for this pot-house assembly." He stalked out, and Johnson shook his head sadly. "That isn't the language you expect of a professional man, but it is exactly what he told the Medical Society of London when they expelled him. He was a very able fellow, but he and I really didn't get on ever since he was awkward with me in the Strand in 1819. I don't know why he came tonight."

Forbes answered this query. "Although my book ran to four editions, he translated M. Laennec's book and got another quack named Herbert to see it through the press. It was after Johnson's time, and the medical journals didn't pay much attention to it."

Our meal had been forgotten, but at this stage Mme. Lajoie brought in coffee, and R. once more talked to our guests. "May we take it that although you cannot agree which is the better word, you all mean the same thing by râle or rhonchus or rattle or wheeze?" Forbes nodded, and R. went on, "M. Laennec told us earlier this evening that he wrote a special note in the preface to his second edition, explaining why he used 'rhonchus' in speech as a synonym for 'râle' in print. I don't remember seeing this in your various translations?"

"I don't remember it either," replied Forbes, "but I only translated what I thought the British public should know, and so omitted Laennec's prefaces, though naturally I reprinted my own with each edition."

Once more we heard a noise outside, and in came an elderly man. "I am sorry to be late," he said, "but at my age I find the night air makes me wheeze if I'm away from Torquay. Some of my friends told me that you were meeting to discuss auscultation, and so I had to ensure that a Barts man was there. I'm Peter Mere Latham, and I see that this cottage was built when my father John was President of the College of Physicians."

We were by now accustomed to unexpected guests, and so we made him welcome, and introduced him to M. Laennec. After the abrupt arrival and departure of Stokes, R. seemed to feel that we might be in for trouble with Latham, and so he deliberately gave him an opening. "You have always been famous for your lectures, Dr. Latham. Your friend Sir Thomas Watson wrote that 'one of their incidental good effects was that of commending to our acceptance and study the even then novel theory and practice of auscultation, by substituting for the technical terminology of Laennec, words and phrases more simple and familiar to the English ear.' You should know, I think, that my colleague and I would not accept Watson's use of the phrase 'technical terminology' in connection with M. Laennec; but your fame is such that we would very much like to hear your views."

Latham's eyes twinkled. "I rather suspect your motives," he answered, "though that seems a most un-Christian thing to say to my hosts."

* "But before I employ any terms to designate particular sounds, I would remark that the language of auscultation is not yet uniform. Writers do not all use the same terms to designate the same things, and until they do, some inconvenience must continue to be felt. Under these circumstances I shall take the liberty of using those which have become current in St. Bartholomew's Hospital, and have had there a certain meaning attached to them. It would be enough for all practical purposes if the unnatural sounds referable to the lungs, whether in breathing, speaking, or coughing, were divided generically into two; into dry sounds, and moist sounds."

So far Laennec had not shown any emotion, but a look of consternation spread over his face as Latham went on.

"The dry sounds proceeding from the air passages I will call rhonchus and sibilus, and the moist sounds crepitations. The terms rhonchus and sibilus are perhaps as intelligible in themselves as they can be made by further description. Rhonchus is the larger and hoarser sound; sibilus the smaller and shriller. You will readily conceive that rhonchus proceeds from the bronchi in their first divisions, and sibilus from them in their minute ramifications. Of the wet crepitations I have made one distinction only, large and small, as I cannot bring myself to invent several names to designate different degrees." He now looked directly at Laennec and continued. "Without wishing to enter upon a criticism of nomenclature, I would further remark that, in giving names to auscultatory signs, we should take especial care that the names themselves do not imply anything that is erroneous, and that they do not go beyond the truth in pretending to designate that which they certainly cannot designate. What I call large crepitation is usually called by most French writers 'râle muqueux,' and by most English writers 'mucous rattle.' Call it râle, or rattle, or crepitation, or what you will; but pray do not add 'mucous' to it by way of a specific difference; for this term must always seem to imply that the sound is produced by air passing through mucus, whereas it is produced equally by air passing through mucus, or pus, or blood, or any fluid whatsoever."

R. felt that this had gone on for long enough, and of course he and Johnson and I had heard Laennec make the matter of 'mucous râles' perfectly plain at the beginning of the evening. He spoke to Latham quietly but firmly. "May I interrupt? You have raised so many points that perhaps we could deal with them as we go along. You have made your views quite clear—I do not think any of us are in doubt about your meanings. But we certainly have misgivings about your views on terminology. M. Laennec, would you care to ask Dr. Latham any questions?"

Laennec turned to face Latham. The evening had passed quickly, and it was beginning to get dark. Suddenly the Frenchman dominated the scene—dominated

* This seemed so important that I made a careful note of Dr. Latham's exact words.

it by his patient logic—and we could see why his searching and dispassionate insistence on the truth would give him the reputation of a cold, meditative, and intellectual personality. At the same time he treated Latham with great courtesy, talking as if explaining to a child his earliest lessons.

"May I ask, Dr. Latham, whether you lectured from your own experience or from books?"

"Naturally some of it was from books, because the art of auscultation had but recently come to England; though I spent many hours at the bedside."

"Did your experience at the bedside enable you to discuss the cause of the sounds you heard, or did you get that from books?"

"I gave the matter considerable thought, and of course there were books to which I could refer."

"You did not, then, speak of the causes of the sounds from post-mortem experience of your own, but took it from others?"

"Yes. You must remember, M. Laennec, that I was not giving a scientific paper, I was merely lecturing as if to students when I made my remarks."

"I understand that perfectly, Dr. Latham, though I see no reason for students to be told anything but the truth. If you accept the pathological teachings of others as to the causes of the sounds—and you have obviously expressed views that Andral and I expressed years ago—then why do you not accept their terminology?"

"I explained that not everyone used the same terms to designate the same things, so at Barts we used, or rather I used, nomenclature that we thought would be best."

"When you say that all did not use the same terms, were you speaking of translators of my book?"

"Perhaps so, to some extent, though there were books by Stokes and Williams that were available to me."

"Then you did not get the words crepitations, rhonchus, and sibilus from my book?"

"Not really. I took them from many books, and as I said, I gave the matter considerable thought, and decided they would be best."

"It was Condillac who remarked that the art of reasoning lies in a well-formed language, and nothing is more injurious to the progress of science than to wrest words from their received acceptation on insufficient grounds, or to invent bad ones. Surely, Dr. Latham, you can see that you have taken words which I invented? You have given them entirely different meanings, and you have taught them to your students. You have even taken a dislike to my very general use of the word 'muqueux,' while promoting the adjective 'sibilant' to a noun. What possible justification is there for using rhonchus as a low-pitched dry sound only? I had searched for a suitable Latin word for râle, and had chosen rhonchus. It means a snoring sound, or stertorous breathing, or even the croaking of a frog. It is from the Greek, and was certainly never limited in its meaning to a low-pitched dry wheeze. You use sibilus as its contrast in pitch. Surely it would have been more logical to use sonorous with sibilus if you had to dispense with the noun râle to which I attached them?"

There was a pause, a silence only broken by an audible wheezing from Latham.

Laennec spoke again. "I am sorry about your asthma, Dr. Latham. I do appreciate that you may have a dislike of my French words, and naturally I am pleased to hear of the interest of you and your hospital in auscultation and its language. If you and St. Bartholomew's have better words, please use them. But if you do not, then pray do not take mine and distort them."

By this time Latham was breathing noisily, and it became clear that he had developed a full-blown attack of asthma. R. and I looked at each other, wondering if we dare offer any modern drug to ease his discomfort, when Latham rose, and begged to be excused.

"I must admit your logic, M. Laennec," he gasped, "though I am sure Barts would have had an answer to it. I must get back to Torquay now to ease this attack. Good-night, gentlemen." And with that he slipped out into the night.

Johnson shook his head. "It was easy for him; he had no competition, no struggle, and so no real incentive to think properly. It was as much the hospital and its system of appointment that was at fault. Latham himself was an honest Christian gentleman and not a bad lecturer, but he just hadn't the intellect to cope with that problem."

Forbes had been subdued for some time now, but his spirits rallied when Latham's backsliding became apparent. "I may have offered a variety of names, gentlemen, but I never went outside the meanings M. Laennec gave them. You can hardly blame me for that." "Oh yes we can," interrupted Johnson swiftly. "If you hadn't offered so many different names, poor Latham wouldn't have got so muddled, and wouldn't have invented his own interpretations."

Once more R. felt it necessary to change the subject. "Gentlemen, we are all indebted to M. Laennec for his courteous handling of Dr. Latham. Have you any suggestions that might help us to sort out some of our difficulties?"

Forbes spoke up. "I tried them all, and my public seemed to like rhonchus best. Râle wasn't very popular in my first edition—no doubt it was too foreign." Johnson chipped in: "I begged everyone to use wheeze, which we could all understand. If you use wheeze wherever M. Laennec would use râle, surely that would do?" "You can't tell me that a death rattle is a wheeze," said Forbes. "Rhonchus doesn't have much of a rattling sound about it either," answered Johnson.

R. turned to Laennec. "Won't you help us in this?" he said. "Surely you must have had some difficulty yourself, with your own colleagues?"

"I never had a difficulty like this," came the answer. "It really seems an absurd problem. I had to explain, to demonstrate, to describe, to teach, and to convince. I did not have to argue about the translation of a word. But may I ask a question?" "Please do," said R. "I wish for a truthful answer," said Laennec. "Do you still find my descriptions and accounts of these signs acceptable, or have you made some advance by now?" R. answered, "We find your account so clear and accurate that we still use it for teaching purposes."

"Thank you. If you still use it, then you do not wish to change my descriptions?" "No."

"Then why do you not use the exact words that I used, and just don't translate them? I imagine most educated men can understand sufficient of my language and so surely this would be a simple solution?"

"That is a very simple solution," I answered, "but it is so simple and so obvious that it has not commended itself to English writers over the past one hundred years. We would like to see it, but I fear that too much damage has been done by your many translators and imitators."

Laennec's logic again asserted itself. "You have only two alternatives where there is so much controversy. Either you must use something on which you all agree already—and you have been kind enough to tell me that my French words will do for that—or else you must start afresh and choose an entirely new and harmless set of terms. But do not commit the sin of taking old words and altering their meaning."

For some time before this I had been contemplating a brief classification that I'd made, and this seemed too good an opportunity to miss. "Would you care to comment on this?" I asked, and gave him the following, already written out.

Additional Sounds

1. Continuous sounds	(*a*) High-pitched wheezes.
	(*b*) Low-pitched wheezes.
2. Interrupted sounds	(*a*) Coarse crackling sounds.
	(*b*) Medium crackling sounds.
	(*c*) Fine crackling sounds (crepitations).

"Thank you," said Laennec, putting it into his pocket. "I'd like to take it with me and study it at my leisure."

At this stage it seemed as if he regarded the matter as closed, and we moved our seats a little, and settled into two groups—Johnson and Forbes arguing together, and R., Laennec, and I in the other. Laennec kept asking questions, and was most difficult to satisfy. He did not want opinions, he wanted facts, and he wanted to know all the advances in pathology and treatment. When R. told him about X rays of the chest he said: "How lucky you are. You can question and examine your patients minutely, and then check much of it by this wonderful machine. It would have helped me to be so much more precise." We hastened to assure him that he always was precise, and noted how quickly he saw that X rays supplemented rather than supplanted the clinical approach.

It was some time before we could get him back to his book. He told us of his illnesses, his difficulties in travelling by coach, his endless pages of manuscript, and the trouble he had with misprints in the proofs. He had had to do everything himself. "I found it very tiring, after a busy day, to sit down and write for four or five hours, night after night; but there was no other way. I knew I had found a key. I knew the lock and I knew how to turn the key. Somehow I felt that the good God was urging me on to complete my work, even though He and I knew that I had the phthisis."

R. looked surprised. "I thought you didn't know about that," he said, "English writers such as Williams said you were unaware of it?"

"I remember C. J. B. Williams very well," said Laennec, "and I will not comment on his ability to you now. Bayle and I had shown that phthisis was pulmonary tuberculosis, so do you think I was unfamiliar with the white plague, and was not fully aware of my disease and its outcome? Remember I lost my dear brother Michaud from tuberculosis after a hæmorrhage. After the book was out, one of your young doctors had expressed my feelings perfectly in saying: 'When I have fears that I may cease to be, Before my pen has gleaned my teeming brain. . . .' Earlier this evening Dr. Forbes mentioned Dr. Clark, who came to Necker when I was ill. I know Clark looked after that doctor, whose name I can't remember now, when he died from consumption in Rome."

Just as we were going to speak more about Keats, Mme. Lajoie came into the room, and spoke firmly to R. "I hope you will not keep M. Laennec up too late. He needs his sleep even now if he is to keep well."

The others heard this comment, and Johnson came over to us. "I'm sure it is time we went," he said, "because after all we have rather intruded ourselves, and no doubt you would like M. Laennec to yourselves for a little while. Thank you so much. I will send my account of this meeting to you quite soon."

Forbes said, "I'm glad to have been able to help you, and to hear that you have read my book." With that our two uninvited guests shook hands with us, and walked out of the cottage.

"Gentlemen," said Laennec, "forgive me if I ask one more question. I always felt that my book cost me my life, and I hoped that it was worth it. Have succeeding generations given the book the recognition that was not given to me?"

R. answered at once. "We can both give an unqualified 'Yes' to that, M. Laennec. It is now well over 130 years since it came out, and a great deal of it could not be written more clearly or correctly today. It has served as an outstanding model with very many imitators. It revolutionised the understanding of pneumonia, and it placed the clinical art of auscultation on a firm basis. You can be assured that it is still in greater demand from libraries than any other medical book of its day, and it has given you the undisputed place of the Father of Chest Medicine."

Laennec's cheeks were more flushed than usual after this, and he seemed both surprised and pleased. "You really are very generous," he said, "and it has made me very happy to have this evening with you and to hear what you think." He shook hands with us both, allowed us to help him on with his cloak, bowed to Mme. Lajoie, and turned to go. His shy personality had captivated us and we watched sadly as he walked out without any ceremony or fuss.

When we returned to the dining-room, there was no trace of Mme. Lajoie. We sat down by the fire, and agreed that the experiment had been a success from our point of view, but we weren't so sure what our guests might think.

In the morning the postman brought a large envelope with our names written on it in old-fashioned script. R. opened it, and found a letter of thanks from Johnson, together with his account of our proceedings.

"A meeting to consider chest terminology was held in 1954. It consisted of Drs. Laennec, Coope, Robertson, and Johnson, and evidence was heard from Drs. Forbes, Latham, and Stokes. The confused state of chest nomenclature nearly 140 years after its invention by M. Laennec was noted, and particularly the failure to appreciate the synonymous nature of râles and rhonchi. This was thought to be largely the fault of Peter Mere Latham of St. Bartholomew's, but was also due to Forbes. A possible method of rectifying this was to use the original names of Laennec, but an alternative was to start afresh with a list of names which would arouse no controversy."

"That seems to put the matter in a nutshell," I commented. "Someone must have helped Johnson to be so brief, and I see he doesn't even mention Ramadge."

"I quite agree," R. said, "and I'm only sorry we didn't attempt all this before, and then I might have written of squeaks, snores, bubbles, and crackles in my chapter on physical signs. All the same, I think you'd better compare what our guests said with what they wrote, just to make sure that we both didn't dine too well."

It took longer than I expected to confirm that our guests had written almost everything they told us, but at last here it is—an evening with René Laennec and some of his contemporaries—just as it happened to us.

Very many friends, colleagues, and relatives have helped with this paper, which has been in preparation for about four years. Mr. L. M. Payne provided information from the library of the Royal College of Physicians of London, Dr. F. N. L. Poynter from the Wellcome Historical Medical Library, and Mr. Wilfred Lee, of Liverpool University, took the photograph. Dr. Clifford Hoyle gave a meticulous scrutiny to the whole text, and was of the greatest assistance in this final draft.

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Points of View

MEDICAL HISTORY: PROFESSION OR PASTIME?

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THIS year, the tercentenary of the death of William Harvey, has been a vintage one for medical historians. In Britain, there was the superb tercentenary congress [1] organised by the Harveian Society of London, Prof. K. J. Franklin's new translation of *De Motu Cordis*,[2] an English translation of Dr. Louis Chauvois's biography [3] of Harvey, the Wellcome exhibition of Harveiana, and the Harveian film,[4] sponsored by the Royal College of Physicians of London. And the medical press in many countries did honour in many different ways to Harvey's memory.

Clearly there is no lack of interest in the history of medicine in Britain : if anyone doubts it, let him search the bookshops for a copy, in any condition, of the last edition of Garrison's *Introduction to the History of Medicine* or of Chaplin's *Medicine in England During the Reign of George III*. Or let him explain the admittedly small but undeniably steady flow of books and monographs on medical history during the past several years ; and, while he is about it, he might also consider the lively sections on the history of medicine at the Royal Society of Medicine and at the annual meetings of the British Medical Association, to say nothing of the historical societies in various parts of the country. Finally, the new journal, *Medical History* made its first appearance this very year.[5]

And yet, at the time I write, there is not a single full-time university lecturer or professor of the history of medicine in any British university. In America there are a few full-time professorships—at Johns Hopkins, Yale, Kansas, and Wisconsin—and there are also some joint appointments (for example, at Boston University, where Dr. Benjamin Spector occupies chairs of anatomy and history of medicine). In Canada, McGill University has Osler's magnificent library, and McGill's interest in medical history will doubtless be maintained since Dr. Lloyd Stevenson is in the happy position of being both professor of the history of medicine and dean of the faculty of medicine. There are also, of course, several chairs on the Continent. In Britain, however, though the history of science can boast, for example, of lectureships at Oxford and Cambridge and, recently, of a chair at University College, London, the history of medicine is a non-runner in our academic stakes. There used to be a chair of the history of medicine in England (at University College, London, and occupied by Dr. Charles Singer) and a lectureship in Scotland (at Edinburgh, where Dr. Douglas Guthrie was lecturer), but when these distinguished men retired their jobs retired with them. We have, of course, many amateur medical historians—amateur, let me hasten to say, only in the sense of not making a living at the game, for among their ranks are historians of rare talent—some of whom are busy professional men, while others have retired and are now free to spend long and profitable hours among their books.

Can we make out a case for having lectureships or chairs of medical history established in at least one or two of our universities? Or should we muddle along as

1. See *Lancet*, 1957, i, 1237.
2. *Ibid*, p. 1176.
3. *Ibid*, p. 1284.
4. *Ibid*, p. 1180.
5. *Ibid*, p. 381.

at present, taking a chance on having a historically minded enthusiast handy to remind our students of their heritage? Are we content to believe "that medical history resembles an iceberg, with a formidable bulk lying under the surface and only a small proportion manifesting itself as a frank course on the subject," [6] or should we range ourselves with those who say, quite bluntly, that "there is indeed a need for the institution of more lectureships on the general subject of the history of medicine"? [7]

The benefits of a knowledge of the history of medicine can, one hopes, be taken as read; if not, the sceptic is referred to the writings of Sir William Osler. Briefly, while it is true that a man can be a doctor without a knowledge of medical history, he will be a better doctor if he is aware of the history of his calling. "Only those who have followed the slow and painful growth of the art and science of medicine, only those who know how much has been accomplished and how much still remains to be done, only those who know how many centuries and even millenia it took to build up knowledge which is now taken for granted, can see this science in its proper proportion, can feel appropriate pride in the medical profession, supposedly the oldest profession of all, and can acquire the humility so necessary to all humans, laymen and doctors." [8]

While I would press strongly for more teaching of the history of medicine in British schools, I would hesitate to see such teaching degenerate into just another compulsory academic burden for the already overladen student. I would hope for teaching along the lines of the American elective system—where classes *may* be taken but do not *have* to be taken. One lecture a week at a convenient time and place seems suitable for such an elective course. In addition, or perhaps even as an extension of such a course, there could be regular informal discussion periods at which the keener students could present the results of their own researches and interests. The formation of more student history-of-medicine clubs could profitably be fostered, and the institution of prizes for the best student essays or talks is another useful means of encouraging students to take an interest in the past. The danger of starting any or all of these student activities is that they may founder after an initial burst of interest and enthusiasm; the sympathetic interest of a full-time medical historian would do much to keep the ball rolling.

The professional medical historian can also help enormously in building up an efficient library of books and manuscripts—but not as mere oddities of the past to be gazed at apathetically through the glass of locked cabinets. Rather he would work through such materials himself and encourage his colleagues and his students to do likewise. Moreover, in some centres there are unique holdings of invaluable source material which have lain untouched since their acquisition and which would keep the historian and his students occupied for many years. But this is very much a pipe-dream: under present circumstances, the closest approach to a full-time British post in medical history will probably be in Australia and not here. The Vice-Chancellor of the University of Adelaide has recently informed me that his university has created a readership in humanities for medical students, and that this will in all probability be essentially a readership in the history of medicine. This Australian plan is a courageous one in an age when all sorts of sciences and -ologies clamour for financial support, and I hope that at least a few British medical schools will follow this lead.

6. Sinclair, D. C. Medical Students and Medical Sciences. London, 1955; p. 127.
7. Cope, V. Z. *In* Careers in Medicine. Edited by P. O. Williams. London, 1952: p. 181.
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Special Articles

SCOTTISH TEACHING HOSPITALS

Defects and Remedies

FINDING most Scottish hospitals antiquated by modern standards, the Royal College of Physicians of Edinburgh set up a committee, convened by Sir Stanley Davidson, to study the facilities for teaching medicine in Scotland, and to suggest improvements; and the committee has now made its report.[1]

It finds the teaching hospitals and medical school at Aberdeen the most satisfactory, for they were built just before the late war, and are well equipped; but even here there is a need for a students' common-room and a teaching-room attached to each ward. At the other schools there is a shortage of such amenities as cloakrooms, reading-rooms, lecture-theatres, common-rooms, and restaurants. Where lecture-theatres are provided, they are not up to the best modern standards (the committee calls for such refinements as didactophones, which enable every student to hear, through his own stethoscope, heart or breath sounds in the patient being demonstrated); and in the outpatient departments there are not enough small rooms for teaching or use as laboratories. Dundee is worst off, for its buildings are the oldest, and were never intended for teaching. The committee approves the Secretary of State's decision to give priority to a new general hospital in Dundee.

Some difficulties have arisen because of confusion about whose duty it is to remedy these defects. The universities hold that, under the terms of the National Health Service Act, the Secretary of State must provide for teaching; accordingly they have not asked for funds from the University Grants Committee for building or equipping lecture rooms, &c., in hospitals. But the regional boards receive no special grant from the Secretary of State for education. In June of this year the universities were informed of a new agreement between the Treasury, the Health Department, and the University Grants Committee, about arrangements for financing teaching and research in Scotland; and the committee hopes that these new arrangements will ease progress. The medical education committees, which should act as a forum for exchange of views between university and regional board, have not worked well, except in Aberdeen where, the committee notes, the university's requests for money were small. These committees, it is hoped, will become more effective. The universities and boards of management should, the report suggests, plan together all new developments that may bear on teaching, and some machinery must be devised to aid this coöperation—for example, small local subcommittees.

The report sets out in some detail what is needed in each school, and sets standards that in Britain will seem high. It then considers what can be done to achieve these aims, in view of the many urgent calls on public money for, among other things, roads, schools, and housing; and the first essential is to give careful thought to planning the use of whatever funds can be spared. Aberdeen needs little, Dundee a whole new hospital; and in Glasgow and Edinburgh improvements in the outpatient departments are the most urgent necessity. They will incidentally improve the service to patients. The committee hopes that the universities will be consulted fully in the design of these new departments, and suggests that the Department of Health for Scotland might take the initiative in making available to the medical education committees in all regions plans designed in any one region for new hospital projects concerned with the improvement of teaching and research.

1. Royal College of Physicians of Edinburgh: Report on Teaching Facilities and Students' Amenities in Scottish Hospitals. 1957. Pp. 28.

Students Guide

1957 1958

Medical Schools

At OXFORD UNIVERSITY the preclinical entry is 76 per year (65 men and 11 women). The clinical school admits 32 students a year, most of whom come from the preclinical departments of the university, but some are admitted from other universities. These students may read for the degree of their own university or if they have spent three years in an approved university, passed the equivalent of the Oxford anatomy and physiology examination, and taken an honours degree in the arts or sciences, for the Oxford B.M.

Prof. Sir George Pickering took up office as regius professor of medicine in October, 1956, a new department having been built for him in the Radcliffe Infirmary. The new department for the Nuffield professor of surgery, Prof. P. R. Allison, is almost completed. This will consist of twin theatres and laboratories above two existing wards in the Radcliffe Infirmary, which are being converted to meet the professor's special requirements. The new department for the Nuffield professor of clinical medicine will be completed this year. Plans have been approved for new departments of anæsthetics, biochemistry, and pathology and a new outpatient department; and a start has been made on the extension of the X-ray department. Even with the development of the new academic departments of teaching and research and the provision of an increased number of teaching beds in the Radcliffe Infirmary, the university does not intend to increase the size of the clinical school. Its aim will still be to provide the maximum amount of individual instruction, and to give the student direct access to a large number of patients during his training. The system of attachment to an individual tutor which has long been an integral part of the preclinical course at Oxford is continued throughout the student's clinical training. This traditional tutorial system is considered to be one of the most valuable parts of the curriculum.

At the UNIVERSITY OF CAMBRIDGE the number of candidates wishing to study medicine continues to exceed the number of places available (about 220 per annum), and all college entries are subject to a university quota. During the year two changes have been made in the regulations for the final M.B. examination. The first relates to the period of clinical instruction in midwifery and gynæcology. The regulations are amended so as to specify requirements of (*a*) six months' instead of three months' clinical training; (*b*) two months' instead of one month's residence in a maternity hospital; (*c*) instruction in antenatal and postnatal care. Students who began their clinical training before Oct. 1, 1956, however, will be allowed to proceed to the final M.B. examination on producing evidence satisfying the midwifery and gynæcology requirements previously in force. The second change is designed to permit undergraduates who by the end of their second year's residence have obtained honours in the natural sciences tripos and have qualified in anatomy and physiology and who wish to undertake a course of non-medical study during the third year in Cambridge, to take the final M.B. examination at the same time as their contemporaries who devote three years to the tripos and qualifying examinations. The requirement that a candidate for either part of the final M.B. examination shall produce evidence of having completed five years of medical study has been amended to restrict the requirement to part II only of that examination. The Cambridge medical student normally completes three of these five years as an undergraduate in residence and on Oct. 1 following graduation begins clinical studies at a recognised hospital. If, in the circumstances mentioned, the third year is devoted to non-medical study the student will begin hospital training with two years' medical study only to his credit, but will be allowed to count as part of his third year of medical study after graduation the period of three months during which he attends the long-vacation course in elementary clinical methods. He will then be able to take part I of the final M.B. (pathology and pharmacology) in the December of his third academical year at hospital and part II (medicine, surgery, and midwifery and gynæcology) in the following June, if he begins hospital training in the July immediately following his qualification for the B.A. degree either in his clinical school or by taking the long-vacation course in clinical methods in Cambridge.

LONDON SCHOOLS

LONDON UNIVERSITY bears a different relation to its medical faculty from other universities: whereas they have one school of medicine each, London has twelve autonomous schools, each of which is closely linked with one of the teaching hospitals, as well as University, King's, and Queen Mary Colleges, all of which take medical students for some part of the preclinical course. All the medical schools are now open to men and women students.

At UNIVERSITY COLLEGE, which has the largest preclinical teaching and research staff in London, medical students taking the preclinical course come into close contact with students in other faculties, particularly with science students and research-workers who are specialising in anatomy, physiology, biochemistry, and pharmacology. Every encouragement is given to students who pass the 2nd M.B. examination with credit to spend an extra year's study for the B.SC. (special) degree in anatomy or physiology. Scholarships and exhibitions supplemented by the Ministry of Education are available for at least 12 students each year to take the B.SC. course. This provides an admirable introduction to research methods and outlook, useful to the medical graduate in the clinical as well as the preclinical fields. The first stage of the new biochemistry building in Gower Street is expected to be ready this autumn and the second stage later in the session. The accommodation vacated by the biochemists will provide for the expansion of the physiology and pharmacology departments and the teaching and research resources of those departments will thereby be greatly strengthened. Students accepted for the full medical course receive their clinical training at University College Hospital Medical School. The dean of the faculty of medical sciences is Prof. F. R. Winton.

KING'S COLLEGE provides courses for the 1st M.B. and 2nd M.B. examinations of the University of London. Applications for admission to the faculty of medical science in October, 1958, should be made at once, and certainly not later than the end of October, 1957. Applicants for admission in 1959 are advised to apply between April and October, 1958. The students of King's College undertake their clinical studies at either King's College Hospital Medical School, St. George's Hospital Medical School, or Westminster Medical School, and no student is allowed to begin preclinical studies at the college who has not also been provisionally accepted by one of these hospitals for clinical training; students should therefore apply at the same time to one or more of these hospitals. One feature associated with the preclinical course at King's College is the participation in the fuller activity of university life offered, because there are faculties of arts, laws, natural science, engineering, and theology also in the college.

The arrangements made by the joint committee of QUEEN MARY COLLEGE and the London Hospital Medical College ensure that the teaching in physics, chemistry, and biology fits in closely with preclinical teaching. Most of the places are taken by London Hospital men and women, but applications from students with other hospitals in view are considered. During the 1956–57 session 65 first-year medical students passed through the departments.

At UNIVERSITY COLLEGE HOSPITAL Medical School there have been no major excitements during the academic year 1956–57. The annexe to the hostel has continued to show its worth and now 103 students are able to live on medical-school premises. U.C.H. together with its sector hospital at St. Pancras now has a minimum of 1000 beds, and the near by St. Pancras Hospital is being used more and more for the clinical teaching of undergraduates. The new Rowland Hall is much used for both clinical lectures and social activities. The hard tennis courts at St. Pancras are also proving popular with students and nurses. The sports ground and its new pavilion at Hendon, which is within thirty-five minutes of U.C.H., is being used more and more and already ideas for increasing the size of the ground are being explored. The rebuilding of the dental hospital and school has not yet begun, but there are indications that a start will be made before March, 1958. A new method of noting a student's performance throughout his career has been devised and it is hoped that such information may be used in assessing a candidate's capabilities. The belief is that too great an emphasis is placed upon marks obtained in final examinations and that a student's record and behaviour throughout his undergraduate career should be taken into account. There is no lack of applicants for medical or dental places, and much time and thought is given to the selection of students.

The Medical College of ST. BARTHOLOMEW'S HOSPITAL is housed in new buildings ideally situated in Charterhouse Square where, in addition to the College hall of residence, there is a gymnasium and tennis and squash courts. The basic science departments of zoology and comparative anatomy, physics, biochemistry, anatomy, physiology, and pharmacology provide tuition for premedical and preclinical students in modern laboratory accommodation. In addition there are research facilities for all these departments. About 30 to 35 are accepted every year from Oxford and Cambridge as clinical students. There is a number of entrance scholarships in arts and in science, and internal scholarships are offered to a limited number of suitable candidates taking an honours B.SC. course in the year after passing the examination in anatomy and physiology. During their final year students are encouraged to spend a few days with a general practitioner, and a lecturer in general practice is on the staff of the college.

CHARING CROSS HOSPITAL Medical School has maintained a steady rate of progress in all departments during the past year. The time has now been reached for reaping the full benefits of the extensive work of reconstruction mentioned in these columns in earlier years. In the main school buildings the new administrative section, the photographic unit, the modernised museum of pathology, and the extension to the department of physiology have all been in full operation to provide staff and students with facilities of a high order. It has also been found possible to use the space in the annexe to better account and thereby increase the efficiency of the departments of clinical pathology and chemical pathology housed there. The new animal house, which has been planned for some time, is now in the process of construction. The students have acquitted themselves well in professional examinations, especially those in their final year. All who submitted themselves for the recent final examination in pathology were successful in each of the other clinical subjects and a pass-rate of nearly 94% was achieved. These examination results were not gained at the expense of student's club activities for these too have had a very successful year. Among the changes in staff the retirement of Mr. R. A. Fitzsimons, surgeon to the hospital and an old student of the school, and Dr. J. E. M. Wigley, for many years physician for diseases of the skin, have to be recorded. The vacancies on the staff have been filled by the appointment of Mr. P. F. Philip and Dr. O. L. S. Scott. Major developments have taken place in the clinical research laboratories, where an expanding research programme has attracted a number of additional workers, including some of established reputation from abroad.

At ST. GEORGE'S HOSPITAL Medical School extensive alterations involving virtually a complete rebuilding of the school are in progress. In spite of some dislocation, the normal work of the school is continuing. Academic units in medicine and surgery have been established and are already taking an active part in teaching. The Grove branch of the hospital at Tooting is developing even more actively than was expected and the arrangements for students to do clinical appointments there are working smoothly. Alterations to the playing-fields are completed and a first-class rugby-football ground should be available at Wimbledon next year.

At GUY'S HOSPITAL Medical School the two and a half years of preclinical studies are designed to prepare the student for the clinical work which will follow, and particularly for the eventual practice of medicine. There is a close link between the medical school departments and the wards. Oxford and Cambridge students are admitted for the three clinical years. The aim at Guy's has always been to encourage responsibility from the moment the student enters the wards. A three-monthly series of dresserships and clerkships are arranged in the general wards and in special departments so that students accept supervised responsibility for patients, and the emphasis is on bedside and outpatient teaching rather than organised lectures. There are, however, lectures and demonstrations organised by the directors of the departments of surgery, medicine, obstetrics, pædiatrics, and anæsthetics in order to cover the whole curriculum. Preregistration appointments are available for those newly qualified, and every encouragement is given to men of promise to obtain the higher degrees and diplomas. It is a condition of entry to the medical school that students should join the Clubs' Union which covers all athletic and intellectual activities and includes membership of the Students' Club.

KING'S COLLEGE HOSPITAL Medical School admits clinical students for the London, Oxford, and Cambridge degrees. The dental school provides courses for the B.D.S. degree and the L.D.S. diploma. 50 medical and 25 dental students are admitted each year. Students for the London degrees do their preclinical training at King's College, London, where they have the advantage of associating with students of all faculties. King's College Hospital, including the Belgrave Hospital for Children, has 550 beds. It is situated in the heart of a large residential area and it has one of the busiest outpatient departments in London with an ample supply of clinical material. The school now has the use and clinical control of 200 medical, surgical, and obstetric beds for undergraduate teaching at nearby Dulwich Hospital where the instruction is undertaken by consultants from King's College Hospital and by some of the consultants of Dulwich Hospital who have been appointed associate teachers in the medical school. Building has begun on the first stage of the new extension to the medical school, which should be completed by the beginning of September, 1957. It will contain on the top floor the new medical professorial unit; on the middle floor a larger practical pathology laboratory, thus releasing the present laboratory for research in Bacteriology; and, on the ground floor, additional rooms for students, including offices for the Clubs & Societies Union. The second stage, which will complete the building, has now been authorised.

A readership in chemical pathology has been established in the school and the first reader was appointed on June 1 this year. A new post of part-time tutor in surgery has been established, which provides for the equivalent of three sessions a week in the medical school. Scholarships and prizes of a total value of over £2000 are available for award annually. Prizes are awarded on the results of the annual class examinations.

During the past year the number of applications at THE LONDON HOSPITAL Medical College has remained high. Application can be made at any time after reaching the age of sixteen, or passing the General Certificate of Education at ordinary level, whichever is the earlier. Applicants are interviewed as soon as possible after they apply, and they are told of the result of the interview within a few days. This policy is still proving of value, since applicants are not left in uncertainty about their

chances of obtaining a place. Applicants who are unable to obtain 1st M.B. exemption at school spend one year at Queen Mary College, but the number who need to do this steadily decreases. For entry to Queen Mary College for 1st M.B. work, students must satisfy University entrance requirements, but application to go there should be made through the London Hospital Medical College. In cases where the applicant from school is able to proceed to either Oxford or Cambridge, the place offered for the whole course becomes automatically transferred for clinical work at a later date. The tutorial system both in the preclinical and clinical periods has been extended during the past year and continues to provide a useful method of linking the various parts of the curriculum. The departments of physiology and anatomy now regularly run B.SC. (special) courses in physiology and anatomy, and scholarships are given as a result of the 2nd M.B. examination to enable suitable candidates to take part in these courses. There is no doubt that these senior studies leading to the B.SC. degree are of great value to students in their future careers. Research facilities continue to expand both in the preclinical and clinical field. New laboratories for clinical research under the direction of the medical and surgical units have been opened and are proving to be of great value. They have a close association with the professorial departments of biochemistry and experimental biochemistry, ensuring that the highest standard of chemical advice will be available to workers in the clinical field. Being in the centre of an industrial and residential area, the hospital continues to attract an unrivalled variety of clinical material to its busy outpatient departments. Junior research fellowships have been established by the college, the tenure of which is normally one year, so that gradutes who have done their house-appointments may gain experience in and have opportunities for original research under supervision. There has been no difficulty in all the newly qualified graduates getting a preregistration appointment, and the majority are able to hold at least their first appointment at the teaching hospital. The athletic side of the college has been greatly helped by the opening of a new pavilion at the sports ground at Hale End.

At ST. MARY'S HOSPITAL Medical School additional research laboratories for the departments of biochemistry, chemical pathology, and pathology, in part of a building adjoining the hospital, leased from British Railways, were brought into use in October. At the beginning of the session Prof. W. S. Peart took up his duties as head of the department of medicine in succession to Prof. G. W. (now Sir George) Pickering, who had become regius professor of medicine at Oxford and who has accepted the invitation of the medical school council to become a vice-president of the medical school. As a result of the 2nd M.B. examination, A. C. Buck was awarded the Sir William Dunn scholarship, open to all students of the university, to take a course leading to an honours B.SC. (special) degree in physiology. The medical school gives a number of its own internal scholarships for students to take this course in either anatomy or physiology, and over the past years it has been found that the students doing this more advanced work, before their clinical studies, have greatly benefited later on.

At the MIDDLESEX HOSPITAL Medical School the number of applicants seeking admission remains high and candidates are advised to apply two years to eighteen months in advance of the proposed date of entry. Students may be admitted to 1st M.B. classes on satisfying the minimum entrance requirements of the University of London; the school has no additional requirements of its own and students need not necessarily have any knowledge of chemistry, physics, and biology before embarking on the 1st M.B. course. Those who have obtained exemption from the London 1st M.B. examination through the necessary advanced-level passes at a recognised examination for the General Certificate of Education may be admitted direct to 2nd M.B. classes, and students who have completed their preclinical studies at Oxford or Cambridge join the school for the three years' clinical course. An arrangement of some years' standing with the authorities of the Central Middlesex Hospital is a valuable addition to the clinical facilities available to students of the school There are a number of house-appointments recognised for preregistration purposes which are reserved for students who qualify from the school. There is an excellent Sports Ground, over 20 acres in extent, at Chislehurst and every student is required to become a member of the Amalgamated Clubs. There is also a health service under the supervision of a member of the consultant staff which is available to all whole-time students. In an effort to strengthen the link between staff and students a "tutor scheme" has recently been inaugurated. Students are assigned to a senior member of the hospital or school staff; the tutor who has six or eight students, does not attempt to supervise their work, but takes an individual interest in them, and on their side the students feel there is someone to whom they are free to go for help and advice in any difficulty. It is felt that this scheme will prove a valuable addition to the corporate life of the school.

The ROYAL FREE HOSPITAL School of Medicine has done well on the academic side this year, with 62 students qualifying, 1 being awarded the University gold medal and 2 gaining honours in one subject. Out of the 9 students who passed the B.SC. special examinations in anatomy and physiology 1 obtained first-class honours and 5 upper seconds. These results are noteworthy in a year of great student activity in other spheres, with several new events added to the normal programme. These have included a public performance of a full-length play by the Dramatic Society, who also put on an evening of one-act plays. The revival of interest in this society was heralded by a midsummer ball and cabaret held in the school quadrangle. A similar ball this year was held in the new quadrangle garden given by Miss Diana and Miss Hermione Anderson as a memorial to the late Sir Alan Anderson, himself a generous supporter of the school. The Students' Union has undertaken the redecoration of some of the club-rooms at Myddelton House, the school's athletic ground at Enfield where the semi-final of the Hospitals "A" Rugby cup was played this year, the home team, now in its fifth year as a club, losing 5–3 to St. Thomas's.

In November the school lost a great friend by the death of Prof. Winifred Cullis, for many years head of the physiology department. A bequest of £1000 under her will and some £900 contributed to a memorial fund are being reserved for a Winifred Cullis library at the Royal Free Hospital. A remarkable year in the school's history was crowned in February by the election of Dr. Katharine Lloyd-Williams as dean of the faculty of medicine of London University, the first occasion on which a woman has been appointed to this office.

In December last ST. THOMAS'S HOSPITAL Medical School suffered a serious loss in the death of Prof. W. G. Barnard, who had been dean since 1947. During the past ten years he made a major contribution towards welding the school together from the chaotic conditions left by the war. He is succeeded by Mr. R. W. Nevin, F.R.C.S. The past year has seen no striking changes in building except for the spacious new quarters of the medical professorial unit. To give it ample accommodation is undoubtedly a long-sighted policy for, owing to the complexity of modern research techniques, these professorial units inevitably become a centre of nearly all clinical research in both school and hospital. Despite political storms and sinister reports of unemployment, the number of candidates applying for admission remains high. It is probable that, in general terms, medicine is competing less successfully for its full share of top-grade science candidates, for whom this decade offers a much wider choice than in the past. The coming year will see the advent of pensions in the National Health Service; the result will be watched by many anxious candidates for general practice who are hoping to step into the shoes of the recipients. No-one knows how many in this present inflationary world will take immediate advantage of their pensions, but some gaps must appear in the present almost impenetrable wall that faces aspiring general practitioners. Meanwhile, an appreciable number of young men are going abroad, mostly to North America. While maintaining a good pass-rate in their finals, the student body still finds time for a

variety of outside interests in which a high standard of performance is achieved. Apart from rowing, sailing, and other sports, the appeal of music, painting, photography, and acting appears to be unceasing. There are also always some enterprising individuals who find their way into expeditions to such remote places as Spitsbergen and Socotra, while in the Services St. Thomas's can boast of a complete corner in regimental medical officers of the Parachute Regiment.

The WEST LONDON HOSPITAL Medical School is recognised by the Universities of Oxford and Cambridge for the undergraduate clinical course, although at present the University of London has not restored the recognition which the school held from 1937 to 1952. The school is occupied purely in clinical teaching and has no preclinical departments. A large number of students come from overseas and it is still hoped that the course may shortly be recognised by the University of London for the M.B., B.S. degree.

At WESTMINSTER MEDICAL SCHOOL the number of clinical students remains constant at about 200. This is the maximum desirable number, having regard to the clinical facilities available in the Westminster teaching group. The applications for admission show a slight decline, but the standard of those accepted is at least as high as in the past. The Westminster teaching group comprises: Westminster Hospital (430 beds) in which clinical practice in general medicine, surgery, and obstetrics is undertaken (the orthopædic, ophthalmic, and ear, nose, and throat departments are also in the main hospital), the Gordon Hospital (100 surgical beds), the Westminster Children's Hospital (120 beds), and All Saints' Hospital (50 beds) for the practice of gynæcology and urology. A close affiliation with St. Stephen's Hospital provides very valuable additional clinical practice in medicine. Instruction in practical midwifery is also given at St. Stephen's Hospital, the Nelson Hospital, and St. Teresa's Hospital, and in fevers at the Western Hospital, Fulham. Under a voluntary scheme students may reside for a fortnight with general practitioners to see the work of their practice. Special instruction in tuberculosis is provided by a fortnight's residence at the King Edward VII Sanatorium, Midhurst, and the teaching of mental diseases is carried out at the Netherne Hospital, London, S.W.17. 40 vacancies a year in the Westminster Hospital teaching group have been recommended for preregistration posts, and competition for these is keen. The school was visited by the University Grants Committee during the year and capital projects were discussed with the committee, notably the proposed building of a new school on a site immediately adjoining the Hospital. It has now been decided with the agreement of the University that the site shall provide for a clinical school only. It is hoped to accommodate in the new building professorial units in medicine and surgery. The new sports ground at Cobham, Surrey, has been an unqualified success and the improved facilities have been reflected in a higher standard of play and a large number of successes in all outdoor sports.

At the SCHOOL OF DENTAL SURGERY of the ROYAL DENTAL HOSPITAL of London, students who have completed the first medical or comparable examination devote one year to the study of general and special anatomy and physiology. In the next three years of the course, after preliminary instruction, both theoretical and practical, in dental mechanics, dental metallurgy, and the properties of dental materials, and instruction in the techniques required for dental conservation work, they attend lectures and clinics on general medicine and surgery at Charing Cross Hospital Medical School and lectures and practice in dental surgery at the dental school. Degree students attend for a further period of four or six months before completing their final examination.

OTHER ENGLISH SCHOOLS

At the UNIVERSITY OF DURHAM the extensions to the department of pathology in the teaching hospital were completed during the year and it is now hoped that work on the extensions to the north block of the medical school, to provide more accommodation for the department of anatomy and to the centre block to provide better facilities for animal house accommodation, will begin during the present summer. At the beginning of the year the school was pleased to welcome Dr. R. C. M. Pearson, medical officer of health for Newcastle, to the lectureship in public health. Dr. Pearson succeeds Dr. W. S. Walton who resigned to become professor of public health in the University of London.

During April the annual meeting of the Association of Surgeons was held in Newcastle, and Prof. Norman Hodgson who retired from the University last year was president of the association at the time. The annual meeting of the B.M.A. was held in Newcastle. College accommodation was used extensively during the meeting, and the medical school became the Ladies Club. Mr. Weldon Watts, consultant surgeon in the teaching hospital and lecturer in clinical surgery in the University, is president of the association for 1957–58. The medical students' council, under the able direction of their president, Mr. Peter G. Wood, has once again been active in representing the interests of medical students both in the college and on the British Medical Students' Association. The University of Durham Medical Society has, as always, completed a full programme of lectures, visits, and social activities during the year. The various athletic clubs in the Medical Athletic Union have taken part energetically in inter-college and local league fixtures and once again the medical faculty has been well represented in the University teams.

In the UNIVERSITY OF BIRMINGHAM Medical School,* it has been decided, at least for the time being, not to reduce the intake of medical students. To meet an urgent national need everything possible is being done to attract more students into the department of dentistry. To this end the building of a new dental hospital has been officially recognised as a major priority, both by the University and the board of governors of the teaching hospitals. Progress in clinical medicine depends on the cultivation of scientific method, and for this buildings are a first essential. Foreshadowed by the University Grants Committee for beginning in 1958 or 1959 is the building of a new biological research block which will house, amongst other scientific departments, medical biochemistry and pharmacology and chemical physiology. The trustees of the Wellcome Foundation have very generously offered to defray the cost of building a new Wellcome research block for clinical research. Other building projects which are scheduled for the near future include a new radiotherapeutic wing, the completion of the west wing, a blood bank, and a paying-patients block at the Queen Elizabeth Hospital, and in addition a diagnostic X-ray department, new theatres, and a new casualty department at the General Hospital. The new operating wing at the Women's Hospital is already in course of construction. The Barnes Library at the medical school will soon be started, as will extensions to the department of medical biochemistry and pharmacology and the construction of a new animal house. An innovation which is now beyond the experimental stage is a scheme of joint appointments by means of which hospital registrars do part-time research work in the medical school and medically qualified lecturers undertake some clinical work in the hospitals. This arrangement has worked extremely well and is forging even stronger links between the medical school and the teaching hospital. Prof. A. P. Thomson has been invited by the University Council to continue as Dean beyond the normal retiring age, and his successor in 1959 is to be Mr. A. L. d'Abreu, reader in thoracic surgery and consultant surgeon to the United Birmingham Hospitals.

At the UNIVERSITY OF LIVERPOOL* 73 men and 27 women undergraduates were admitted in October, 1956, and, of these, 54 entered the first year and 46 the second year. The number of applications for admission to the medical school still far exceeds the number of places, and a full complement of students will begin their studies in October, 1957, but there are indications that the

* The entrance requirements for the Universities of Manchester, Liverpool, Leeds, Sheffield, and Birmingham are laid down in the pamphlet, *University Entrance Requirements 1951–1955*, copies of which may be obtained from the Secretary to the Joint Matriculation Board, 315, Oxford Road, Manchester, 13. Additional faculty requirements may, however, be imposed; details can be obtained from the dean of the faculty of medicine in each university.

number of candidates for medicine is declining. There have been no changes in the requirements for exemption from the 1st M.B. or in the medical curriculum proper, but a committee has been set up to consider the implications of the new Recommendations of the General Medical Council. Before next session opens the new medical school building will be ready for occupation and will house the departments of pharmacology, pathology, bacteriology, medicine, obstetrics and gynæcology, and radiodiagnosis, and the dean's offices. A full-time chair of child health has been established to replace the part-time professorship which has been held, with distinction, by Prof. N. B. Capon since its foundation in 1944. Dr. John D. Hay has been appointed to the chair on the retirement of Professor Capon at the end of the session. Other members of faculty retiring at the same time are Prof. H. H. Stones, Sir Arthur Gemmell, and Dr. C. E. Brunton. The board of governors of the United Liverpool Hospitals has been asked to provide, if possible, facilities at the Royal Infirmary for a whole-time reader in the department of medicine to be appointed by the University.

At MANCHESTER UNIVERSITY * the number of applicants is still far in excess of the number of places available. 87 new students were admitted in October, 1956, including 22 women. It is too early to comment on the revised curriculum which was introduced in October, 1955, and it will be another year before it is fully in force. A certain number of clinical students enjoyed a "free" long vacation for the first time last summer as a result of changes in the time-table. The curricular revision, however, is not regarded as final, and already further thought is being given to other possible changes in the course and examinations. Further discussions have taken place with the College of General Practitioners with a view to extending the facilities for training in general practice.

At the UNIVERSITY OF LEEDS * the beginning of the 1956–57 session saw the establishment of the part-time chair of urology, Prof. L. N. Pyrah taking up his appointment on Oct. 1. This is believed to be the first chair in the subject in a British university. During the year the University received a generous grant from the Wellcome Trust, to which the board of governors of the teaching hospital have added a substantial sum so that a new building can be erected to house laboratories for the M.R.C. surgical research unit under the direction of Professor Pyrah and for the University department of medical physics. The building of the Martin Wing of the teaching hospital is well under way, and in this building will be housed the full-time professorial units of medicine and surgery. Each department is to have beds, laboratory, and research and tutorial rooms. This new accommodation will be of the greatest value both for teaching and research. Also in the Martin Wing will be additional floors for purely hospital purposes and new laboratories for the clinical pathology and hæmatology services provided by the University department of pathology. In the school itself the conversion of the men's and women's common rooms for library purposes is complete and this has greatly improved the amenities of the library though it does not fully satisfy the needs of the library for additional space. The University has suffered the loss of two emeritus professors in the past year: Prof. M. J. Stewart, professor of pathology from 1918 to 1950, and Prof. G. W. Watson, professor of clinical medicine from 1925 to 1932 and professor of medicine from 1932 to 1937.

At the UNIVERSITY OF SHEFFIELD * the new teaching block at the Royal Infirmary was formally opened on Nov. 29 by Prof. G. W. Pickering. Further University building affecting the medical school is being planned, but at the moment it takes lower priority than certain other projects. Coöperation is being maintained with the Board of Governors of the United Sheffield Hospitals in relation to the planning of a new teaching hospital. The hospitals sent a small deputation (including the dean and representative clinical teachers) to inspect Swiss, German, and Swedish hospitals during the year, and a University team recently visited the new medical buildings in Belfast. Lack of new building has hampered planning for any increased numbers of medical students, but it has fortunately proved possible to increase the dental intake, and candidates of adequate calibre are coming forward. The effects of increased numbers of students in the University as a whole are also felt indirectly in the faculty of medicine, in that considerably larger numbers of pure science students wish to read physiology and biochemistry. Active discussion among various groups has been going on for some time about possible curriculum changes, and the policy revealed by the G.M.C.'s recently issued Recommendations is warmly welcomed.

In the UNIVERSITY OF BRISTOL the faculty of medicine has undertaken an extensive review of the medical curriculum and as an interim measure has made a substantial change in the requirements for exemption from the 1st M.B. Instead of passes at advanced level in physics, chemistry (including organic chemistry), and biology or botany and zoology, the University has now adopted the following minimum requirements:

(*a*) The acceptance of a good pass at O level in physics in the General Certificate of Education or a pass at O level in physics on an A level paper.
(*b*) The acceptance of A level chemistry in the G.C.E. without any special condition as to organic chemistry.
(*c*) The acceptance of biology at A level in the G.C.E. *or* of a good pass in botany at O level (or a pass at O level on an A level paper) *together with* a pass at A level in zoology.

The course in forensic medicine has been reorganised with effect from Aug. 1, 1957, and the separate examination in that subject has been abolished. Numbers of applications for entry to all branches of the faculty of medicine, dentistry, and veterinary science remain greatly in excess of the numbers of places available.

WALES

At the WELSH NATIONAL SCHOOL OF MEDICINE the celebrations of the 25th anniversary of the school last October included the return to Cardiff of a very large number of old students to attend the dinner. Many of them were also able to visit the various departments of the school. The task of revising the schedules of accommodation for the new teaching centre in Cardiff has now taken a further step forward, for the observations of the Welsh Board of Health have been received and are being carefully studied. It is hoped that general agreement will be achieved by the end of the present session. It will be some years before the results of the preparatory labour involved will be seen, but there are favourable indications that there will be built "a Centre fit to take its place among the great teaching and healing Centres and worthy of its position as the Teaching Hospital of Wales." Alongside this project will be plans for the new preclinical departments, and it has been agreed that these shall be included in the building programme of the University College, Cardiff, so that they will be associated closely with the departments of physics, chemistry, and biological sciences in Cathays Park. The number of students who entered the clinical courses at the school was 56, and in addition 16 premedical and 27 preclinical students started their courses at the University College of South Wales and Monmouthshire. In common with other universities there has been some revision of fees, but a welcome amalgamation of all fees, including University examination degree and registration fees, is now included. Plans for accommodation for a new library, dining-hall, reading-rooms, &c., for clinical students have been approved in principle by the council of the school and are now under consideration for grant assistance. The school has received several benefactions. The Sir Ewen Maclean bequest has been increased as the result of a further legacy, and a research scholarship in pharmacology has been gratefully accepted. This department has also had grants for research. Some revisions of the curriculum have been made, and much thought has been given to this problem, which will now be clarified by the new Recommendations of the General Medical Council. The school is also carrying out a review of the preregistration appointments in hospitals in the region. A rearrangement of the time-tables of instruction in the preclinical years is being carried out, and the repeat examinations in these subjects will be held in September instead of in June.

SCOTLAND

At the UNIVERSITY OF ABERDEEN the course for the degrees of M.B., CH.B. extends over six academic years. Courses in premedical and preclinical subjects are given in departments located in Marischal College and in Old Aberdeen, providing instruction to science as well as to medical students. The laboratory and lecture courses in the three clinical years are given in the University buildings on the Foresterhill site where the main hospitals are, and clinical instruction is given in all the hospitals in Aberdeen. Few changes have taken place during the past year, though a number of important new projects are in course of completion or being planned. The new wing to the Royal Infirmary has been opened and provides accommodation, among other things, for an enlarged blood and fluid transfusion unit which used to be housed in the department of bacteriology. A start has been made on building the special research department in clinical midwifery which will be staffed by the Medical Research Council and run under the honorary direction of the professor of midwifery. It is hoped that it will be opened in the autumn. In course of preparation are plans for a new medical physics building and a new animal house, and it is hoped that a start will be made during the next academic year. The number of students applying for admission tends to fall, but is still above the number of places available. During the year the four Scottish Universities promoted an ordinance to permit certain candidates for admission to the medical faculty under regulations to be made by each university to sit the professional examination in physics, chemistry, and biology without attending university classes in these subjects. It is hoped that this ordinance will be approved and that the new regulation will come into force next year. The policy of attaching students to general practitioners in the region continues to be successful. Fears that the patients might object to such an arrangement have not been justified, and the relations between students and doctors have been friendly and helpful.

At the UNIVERSITY OF EDINBURGH, the past year has been one of continuing activity. The number of applicants for admission in October, 1957, to the M.B., CH.B. course remains high in relation to the number of places available. Those applying for admission for the course beginning in October, 1958, should submit their applications to the dean of the faculty by Dec. 31, 1957. A limited number of undergraduate bursaries and scholarships are available to students in the faculty of medicine for advanced courses of study—e.g., an honours course of instruction for the B.SC. degree. The University conducts postgraduate courses leading to the diplomas in medical radiodiagnosis (2 years), medical radiotherapy (2 years), psychiatry (3 months, full-time, or 6 months, half-time), public health (9 months), and tropical medicine and hygiene (6 months). Graduate scholarships and fellowships are also offered, being open to graduates in the faculty of medicine of any university, to graduates in the faculties of arts or science of any university who hold an honours degree, and to licentiates in medicine. The holders of such awards are required to undertake research work in a department within the faculty of medicine. The Edinburgh Post-Graduate Board for Medicine (see p. 439), which is an advisory council to the University, provides courses of instruction leading to the higher qualifications granted by the Royal Colleges of Edinburgh.

At GLASGOW UNIVERSITY the number of applications for admission to the medical school is slightly, though not significantly, above that for last year, and is still in excess of the number of available places. The number of applications for entry to the dental school, which had shown a sudden and welcome increase last year, is this year well maintained. The veterinary school has also a satisfactory quota of applications. The most important development within the medical school has been the institution of a chair in virology and the securing of a site immediately adjoining the Western Infirmary and the University for a new building to house this new department. It is hoped that the new building will be available for occupation in two years' time. Until then temporary accommodation will be arranged for the tenant of the chair. The dental school at Glasgow has acquired an extensive site adjacent to the dental hospital which will provide additional accommodation, mainly for postgraduate activities. In the veterinary school the animal hospital and associated buildings for clinical instruction are now in full operation. The farm which was purchased three years ago is being developed as a field station with facilities for instruction in animal husbandry and preventive medicine, and with accommodation for experimental farm animals. There have been no major changes in the curriculum at Glasgow, but the junior teaching staff has been augmented by several additions in the lecturer grade.

At the UNIVERSITY OF ST. ANDREWS instruction in the subjects of the clinical years of study is given at Dundee, while the premedical and preclinical subjects may be studied either at St. Andrews or at Dundee. The course of study lasts six years. The annual intake of students to the faculty of medicine is limited to between 70 and 80 to ensure that the hospital facilities available are sufficient to allow of adequate clinical instruction being given to each undergraduate. The laboratory accommodation in both preclinical and clinical years has been recently extended and provides excellent facilities for students. Both at St. Andrews and Dundee there are residences which accommodate undergraduates from all faculties. Medical students in their early years are encouraged to reside in these to make contact with undergraduates of other faculties.

IRELAND

At the UNIVERSITY OF DUBLIN, the entry of students has been restricted so that the number in each clinical year in future will be limited to 50. Clinical tutors in medicine and in surgery have been appointed in the hospitals regularly attended by students of the University. The tutors supervise the work of students in the hospitals, under the direction of the professors of medicine and surgery. A professorial unit in obstetrics and gynæcology has been established in the Rotunda Hospital, under the direction of Prof. J. B. Fleming. Special teaching in pædiatrics is now provided in the National Children's Hospital. Reconstruction of laboratories is still in progress. The anatomy theatre has been completely refitted, and extensive changes have been made in the physiology, biochemistry, and pathology departments. The course in practical pharmacology has been extended, and arrangements have been made for increased instruction in clinical pathology and bacteriology.

The SCHOOLS OF SURGERY, DUBLIN, including Carmichael and Ledwich Schools, are attached by charter to the Royal College of Surgeons in Ireland. The college admits to the preregistration classes approximately 100 students each year. The normal method of entrance is by competition in the preliminary examination, but a limited number of places is given to those with exceptional qualifications and to certain students selected by the Colonial Office, to which all colonial students should apply, because, owing to limitation of numbers, they cannot be admitted to the entrance examination. Nearly all students take the Irish Conjoint Board's examination but some take in addition the London examination. The Schools were inspected by delegates from London University three years ago and as a result were "recognised" for a further period of five years. Students are medically examined at the start of the preregistration year and again before the start of the clinical years. Two doctors give free medical care to students and there are a men's warden and a lady dean of residence to help students in obtaining suitable accommodation and in other ways. The playing fields of 16 acres and the pavilions are among the best in Dublin. Recently the laboratory space for chemistry and physics has been doubled, two rooms for advanced work have been added to the anatomy department together with a new lecture-room and much additional apparatus obtained for the pathology, physiology, and physics department. In addition a large room has been constructed for the Men's Union.

The ROYAL COLLEGE OF SURGEONS IN IRELAND is in the unique position of being by charter an undergraduate school of medicine undertaking the full training in the basic sciences and in the preclinical and clinical courses. In the college buildings in Stephen's Green in the middle of the city are the laboratories for biology, physics, and chemistry, and for biochemistry, physiology, and pathology, as well as an unusually large anatomy department, five large lecture-theatres for formal lectures, examination, administration, and reception rooms, the college library, a restaurant for the students, and the Union common-rooms for men and women. For midwifery and gynæcology any of the three well-known Dublin maternity hospitals are available to college students and for general hospital work any of the ten Dublin clinical hospitals and the usual specialist hospitals are available. The Students' Union caters for about twelve other societies—scientific, musical, dramatic, rowing, football, boxing, &c.—and most of these compete with visiting universities, Irish or otherwise. Students are examined radiologically on entrance, tuberculin-tested and, if they wish it, given B.C.G. The radiological examination is repeated before commencing clinical work. The great majority of students take the examinations of the Irish Conjoint Board and a few take the English Conjoint and the London University examinations.

At QUEEN'S UNIVERSITY, BELFAST, the number of entries to the medical school each year is restricted to 108, of which up to 20 places are reserved for the school of dentistry. Priority is given to applicants whose parents are normally resident in Northern Ireland, but a number of places are reserved for selected candidates from Great Britain and overseas. Details of the entrance requirements may be obtained from the Secretary, Faculty of Medicine, 25 University Square, Belfast, or from the Clerk of Admissions, Queen's University, Belfast. The Institute of Clinical Science, which was opened in May, 1954, provides exceptional facilities for the clinical teaching of undergraduates and of research for postgraduates. A new chair of mental health has been created and filled, whilst the department of pharmacology has been reorganised as a department of therapeutics and pharmacology and the chair filled. A department of anæsthetics has also been established.

The NATIONAL UNIVERSITY OF IRELAND has colleges in Dublin, Cork, and Galway.

Degrees and Diplomas

EXAMINING BOARDS

English, Scottish, and Irish Conjoint Boards

THE Examining Board in England by the Royal College of Physicians of London and the Royal College of Surgeons of England examines candidates for the qualifying diplomas of L.R.C.P., M.R.C.S. Candidates satisfying the board's regulations in regard to the preliminary examination in general education are eligible for admission to the premedical examination in chemistry, physics, and biology, and are required to complete the professional curriculum subsequently at a recognised medical school. Copies of the regulations, with a calendar showing the dates of examinations, may be obtained, free of charge, from the secretary to the Examining Board in England, the Examination Hall, Queen Square, London, W.C.1.

The Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow have an arrangement by which, after one series of examinations, held in Edinburgh or Glasgow, or both, the student may obtain the diplomas—designated by the letters L.R.C.P.E., L.R.C.S.E., L.R.F.P.S.—of all three bodies. Candidates may work for the examination of the Scottish Conjoint Board at any of the recognised medical schools of Great Britain and Ireland. The course lasts six years and includes, in addition to the preliminary examination in the natural sciences—i.e., chemistry, physics, and biology—three professional examinations: the first in anatomy and embryology, physiology, biochemistry, and biophysics; the second in pathology and bacteriology and pharmacology; and the final in medicine, surgery, midwifery, forensic medicine, and public health. Details may be had from the registrar, 18, Nicolson Street, Edinburgh.

The Conjoint Board of the Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland examines candidates for the qualifying diplomas of the L.R.C.P.I. and L.M., L.R.C.S.I. and L.M. After passing an approved examination in general education, candidates are required to do a one-year course in chemistry, physics, and biology, these subjects being treated with special reference to their applications in medicine. After passing the preregistration examination in these subjects a five-term course of anatomy and physiology follows. There is then a preclinical term with an introductory course at the hospital and this is followed by three years' clinical work. There are three professional examinations. Candidates are accepted from most of the recognised schools at home and abroad, but in practice 99% of the candidates are from the Schools of Surgery which are controlled by the Royal College of Surgeons in Ireland. The Irish Conjoint Board thus differs from the English and Scottish Boards in that it has a large teaching school under the control of one of its constituent colleges.

Apothecaries' Licences

The Society of Apothecaries of London grants the L.M.S.S.A. Lond. to candidates who pass the primary examination (which is held quarterly) and the final examination. Final examinations are held monthly, except in September. The minimum period of study is normally five years. The four parts of the final examination may be taken together or in any order. Regulations and a schedule of the required courses of study may be obtained from the registrar, Apothecaries' Hall, Black Friars Lane, E.C.4.

The Apothecaries' Hall of Ireland is an examining and licensing body. Candidates for examination must be registered medical students. The diploma, L.A.H. Dublin, confers on holders the right of registration in the Medical Registers of Ireland and Great Britain. An examination in practical pharmacy is a compulsory part of the qualifying examination. A course of lectures in the subject is given at the hall prior to each session of examinations. The latter are held three times yearly—in March, June, and November. Further information can be had from the registrar, 95, Merrion Square, Dublin.

UNIVERSITY DEGREES

Bachelor of Medicine and Surgery

All the universities in the United Kingdom, except Nottingham, Reading, Southampton, Hull, and Exeter, offer baccalaureate degrees in medicine and surgery, conferred on the results of examination.

HIGHER QUALIFICATIONS

Those who have graduated in medicine and surgery are at liberty to seek higher qualifications if they wish.

Doctor of Medicine and Master of Surgery

Graduates holding bachelor's degrees can take the degree of doctor of medicine or master of surgery. All universities with medical faculties in Great Britain and Ireland confer such degrees. Liverpool offers the orthopædic degree of M.CH. ORTH.

Master of Midwifery

The Society of Apothecaries of London grants the mastery of midwifery (M.M.S.A.) upon examination in obstetrics, pædiatrics, and public health. The examinations are held in May and November, and regulations may be obtained from the registrar, Apothecaries' Hall, Black Friars Lane, E.C.4.

MEMBERSHIP AND FELLOWSHIP

The Royal College of Physicians of London confers the membership (M.R.C.P.), which is obtained by examination. Examinations are held four times in each

year, and medical graduates and licentiates of the college over twenty-three years of age may sit for it. Details can be obtained from the Secretary, Royal College of Physicians, Pall Mall East, London, S.W.1. Fellows of the college are elected annually at a general meeting of the college.

The Royal College of Surgeons of England grants a fellowship to those passing the primary and final F.R.C.S. examinations. The primary examination is open to those who hold a qualification registrable in the British Medical Register and to graduates in medicine and surgery of universities and medical colleges recognised by the council. Subjects of the primary examination are anatomy (including normal histology), applied physiology, and the principles of pathology. The final examination can be taken in general surgery, ophthalmology, or otolaryngology. To be admitted to the final examination in general surgery candidates must produce evidence of having been engaged in acquiring professional knowledge for not less than three years after taking a recognised medical qualification, and of having held the requisite resident surgical posts during a part of that time. Candidates for the final examination in ophthalmology or otolaryngology must have been qualified for three years and must have held general and specialist resident posts during an aggregate period of eighteen months. The primary examination is held in February, June, and October; and the final examination is held in May and November. The college also grants a fellowship in dental surgery. The primary examination is open to those with a dental qualification registrable in the British Dentists Register, and to graduates and diplomates in dental surgery of universities and licensing bodies recognised by the council. Subjects of the primary examination are applied anatomy, and applied physiology, and the principles of pathology, with special reference to the teeth and jaws; and of the final examination surgery, oral pathology, and bacteriology and dental surgery. The Faculty of Anæsthetists has been formed within the college, and the faculty grants a fellowship by examination. Subjects for the primary examination are anatomy, physiology, pathology, and pharmacology; and for the final, anæsthesia and analgesia, medicine and surgery, and the application of the basic sciences to anæsthetics. Copies of the regulations and full particulars may be obtained from the Examination Secretary, Examination Hall, Queen Square, London, W.C.1.

Medical graduates who desire to specialise in obstetrics and gynæcology may apply for entry to the Membership examination of the Royal College of Obstetricians and Gynæcologists (M.R.C.O.G.). A minimum of three years' residence in hospital posts recognised for the examination is required before application is made. The Fellowship (F.R.C.O.G.) is granted to members who are judged by the council to have advanced the science and art of obstetrics and gynæcology.

Graduates may become members of the Royal College of Physicians of Edinburgh (M.R.C.P.E.) on passing an examination, particulars of which may be obtained from the secretary, 9, Queen Street, Edinburgh, 2. The fellows are selected from among members by the council of the college, and receive the designation F.R.C.P.E.

Fellowship of the Royal College of Surgeons of Edinburgh (F.R.C.S.E.) is granted to medical graduates who pass the required examinations. The examination is divided into two parts—the first on anatomy, physiology, pathology, and bacteriology, and the second on the principles and practice of surgery and on one of four special subjects to be chosen by the candidate. Particulars of the regulations may be obtained from the clerk of the college, Surgeons' Hall, 18, Nicolson Street, Edinburgh.

The Royal Faculty of Physicians and Surgeons of Glasgow grants, after examination, a fellowship *qua* physician and a fellowship *qua* surgeon registrable by the G.M.C. as an additional qualification (F.R.F.P.S.). Admission is by examination and subsequent election. Candidates for the fellowship in medicine must have been in possession of a recognised medical qualification for not less than three years, and must have been engaged during one of these years in full-time clinical work in a recognised hospital and have spent two other post-graduate years in approved medical work. The examination comprises a clinical examination in medicine, written and oral examinations in the principles of medicine and medical pathology, and written and oral examinations in the practice of medicine and therapeutics. Candidates for admission to the fellowship in surgery are required to possess a recognised medical qualification and to pass a primary and a final examination. The primary examination consists of written and oral examinations in anatomy and in physiology, pathology, and bacteriology. Candidates who have passed the primary fellowship examination of the Royal College of Surgeons of Edinburgh, the Royal College of Surgeons of England, the Royal College of Surgeons in Ireland, or the Royal Australasian College of Surgeons will be exempted from the primary examination for the fellowship of the faculty *qua* surgeon. For admission to the final examination candidates must have been in possession of a recognised medical qualification for not less than three years and produce evidence that they have been engaged, after qualifying, for one year in full-time clinical work in a hospital approved by the council and for a further two years in the study of surgery. The final examination comprises a clinical examination in surgery, written and oral examinations in surgical anatomy and surgical pathology, and written and oral examinations in surgery. Alternatively, candidates may submit themselves for examination in one of the following subjects: obstetrics and gynæcology, ophthalmology, or otorhinolaryngology. Details may be had from the secretary of the Royal Faculty of Physicians and Surgeons, 242, St. Vincent Street, Glasgow, C.2.

Membership of the Royal College of Physicians of Ireland (M.R.C.P.I.) is granted on the result of an examination, the details of which may be obtained from the registrar of the college, 6, Kildare Street, Dublin. Fellows are elected by ballot from among the members, and receive the designation F.R.C.P.I.

Graduates seeking the fellowship of the Royal College of Surgeons in Ireland (F.R.C.S.I.) must pass in two examinations, a primary in anatomy, physiology, and the principles of pathology, and a final in surgery, including some pathology. There are three examinations each year. Exemption from the primary is given to candidates who have passed this examination since 1951 at either of the Royal Colleges of London, Edinburgh, or Australasia, or at the Royal Faculty of Glasgow. A full-time four-month course in preparation for the primary examination begins on Oct. 1 and March 1 each year: the number of places is limited. Further particulars may be obtained from the registrar, the Royal College of Surgeons in Ireland, Dublin.

The Faculty of Radiologists offers a fellowship (F.F.R.) to medical graduates of five years' standing who have spent at least one year in general clinical work at approved hospitals, hold a radiological diploma, and have practised radiology exclusively for at least two years after obtaining that diploma. Candidates are required to pass an examination in radiodiagnosis or radiotherapy, and in general medicine, general surgery, and pathology. Candidates who hold higher medical or surgical qualifications may be exempted from the examinations in general medicine, general surgery, or pathology. Full particulars may be obtained from the warden, the Faculty of Radiologists, 45, Lincoln's Inn Fields, London, W.C.2.

SPECIAL DEGREES AND DIPLOMAS

The regulations for the following diplomas can be obtained by applying to the examining bodies concerned.

Anæsthetics

The English and Irish Conjoint Boards offer diplomas in anæsthetics (D.A.). The Faculty of Anæsthetists grants a fellowship (F.F.A.) on examination.

Bacteriology

Diplomas in bacteriology are granted by the Universities of London and Manchester.

Child Health

Diplomas in child health (D.C.H.) are granted by the National University of Ireland and the English and Irish Conjoint Boards.

Clinical Pathology

The University of London offers a diploma in clinical pathology (D.C.P.).

Industrial Medicine

The Royal Faculty of Physicians and Surgeons of Glasgow, the Society of Apothecaries of London, and the English Conjoint Board offer diplomas in industrial health (D.I.H.).

Laryngology and Otology

The English Conjoint Board offers a diploma (D.L.O.) for those who have made a special study of the ear, nose, pharynx, and larynx. The final examination for the F.R.C.S. and for the F.R.F.P.S. may be taken in otolaryngology.

Microbiology

The University of Sheffield awards a diploma in this subject after a full-time course of study extending over one university session. Entrants will normally be expected to be graduates of a university, but the senate may deem other qualifications as equivalent for this purpose.

Obstetrics and Gynæcology

The Royal College of Obstetricians and Gynæcologists grants by examination a diploma (D.OBST.) to graduates with postgraduate hospital experience in general medicine or surgery and in obstetrics. The University of Dublin also offers a diploma (D.G.O.). The higher qualification granted by the Society of Apothecaries of London has already been mentioned. The final examination for the F.R.F.P.S. may be taken in obstetrics and gynæcology.

Ophthalmology

The English and Irish Conjoint Boards issue a diploma in ophthalmology (D.O. and D.O.M.S. respectively). The final examination for the F.R.C.S. and for the F.R.F.P.S. may be taken in ophthalmology.

Orthopædics

The University of Liverpool offers the degree of M.CH. ORTH. which is open to medical graduates of an approved university who hold the fellowship in surgery of one of the British colleges or of the American College of Surgeons.

Pathology

The English Conjoint Board offers a diploma in pathology (D.PATH.).

Physical Medicine

The English Conjoint Board offers a diploma in physical medicine (D.PHYS.MED.).

Psychological Medicine

The Universities of London, Bristol, Dublin, Durham, Edinburgh, Ireland (National University), Leeds, and Manchester, and the English and Irish Conjoint Boards offer diplomas in psychological medicine.

Public Health

A diploma in public health (D.P.H.) is granted by the English Conjoint Board and by all the universities of Great Britain, except Cambridge, Oxford, Birmingham, Reading, Sheffield, Nottingham, Southampton, Hull and Exeter, and also by the National University of Ireland.

Radiology

The Faculty of Radiology grants a fellowship (F.F.R.). The Universities of London and Edinburgh and the English Conjoint Board offer two diplomas—one in medical radiodiagnosis (D.M.R.D.) and one in medical radiotherapy (D.M.R.T.). The University of Liverpool offers a diploma D.M.R.(D.) or (T.) obtainable by examination after a two-year course in diagnosis or therapy; after a further two years diplomates may be awarded the M.RAD. by presentation of a thesis.

Tropical Medicine

A diploma in tropical medicine and hygiene (D.T.M. & H.) is granted by the University of Edinburgh, by the University of Liverpool jointly with the Liverpool School of Tropical Medicine, and by the English Conjoint Board. The University of London has an academic postgraduate certificate and an academic postgraduate diploma in tropical medicine and hygiene.

Tuberculous Diseases

A diploma in tuberculous diseases (T.D.D.) is granted by the University of Wales.

DENTAL DEGREES AND DIPLOMAS

There are schools of dentistry at the Universities of London, Belfast, Birmingham, Bristol, Dublin, Durham, Edinburgh, Glasgow, Leeds, Liverpool, Manchester, Sheffield, and St. Andrews (at Queen's College, Dundee); and at the University Colleges of Dublin and Cork in the National University of Ireland. London University offers a B.D.S. and an M.D.S.; it also prepares students for the L.D.S. of the Royal College of Surgeons. This college has a fellowship in dental surgery (F.D.S.) and a diploma in orthodontics (DIP. ORTH.). A fellowship is also granted by the Royal College of Surgeons of Edinburgh. Edinburgh University offers a B.D.S. and an M.D.S., Leeds grants an L.D.S., a baccalaureate degree (B.CH.D.), and mastership (M.CH.D.), and Manchester grants an L.D.S., a B.D.S., an M.D.S., and also a doctorate in dental science (D.D.S.). Glasgow University and the University Colleges of Dublin and Cork grant a B.D.S. and an M.D.S., and Trinity College, Dublin, offers a B.DENT.SC. and an M.DENT.SC. St. Andrews no longer offers a diploma, but in its place a baccalaureate (B.D.S.), and it has also instituted a doctorate of dental science (D.D.SC.). It continues to offer a diploma in public dentistry (D.P.D.) and an M.D.S. All the other universities mentioned offer L.D.S., B.D.S., and M.D.S. Licences in dentistry are granted by the Royal College of Surgeons of Edinburgh, the Royal Faculty of Physicians and Surgeons of Glasgow, and the Royal College of Surgeons in Ireland. The Royal Faculty of Physicians and Surgeons confers a higher diploma in dental surgery (H.D.D.) and a diploma in orthodontics (D.D.O.).

Postgraduate Education

EACH university in the United Kingdom with a medical school is responsible for the postgraduate education of the region in which it is situated. Each has a postgraduate education committee with a dean or director of postgraduate studies as its executive officer.

IN LONDON

The British Postgraduate Medical Federation (University of London) provides postgraduate education in the medical and dental specialties, supplementing the opportunities available at the undergraduate schools and teaching hospitals and those provided by the three Royal Colleges. The services of the staff of the central office of the Federation are available to all postgraduates, including those from the Commonwealth, the Colonial territories, and foreign countries, in advising on programmes of study and in making the arrangements necessary. Each of the three Royal Colleges arranges lectures in various aspects of its specialty, and advises graduates on the suitability of hospital appointments and programmes of study for its higher qualification.

British Postgraduate Medical Federation

The British Postgraduate Medical Federation, which is a school of the University of London, comprises the Postgraduate Medical School of London at Hammersmith Hospital (with its university departments of general medicine, general surgery, and pathology) and 14 Institutes, each associated with a special postgraduate teaching hospital or Royal College. The numbers of students that can be admitted to the clinical practice of the hospitals with which the Institutes are associated are limited; resident clinical appointments are available to suitable students of the Institutes, and provide the most valuable form of postgraduate education. There are

opportunities for research by selected graduates. At all the Institutes courses of instruction are given throughout the academic year; they are suitable for graduates in the early stages of their specialist education and also for those who have completed their practical training. Two or more years of hospital work in general medicine and general surgery after graduation are normally advisable before commencing work in the special branches. The work at the Institutes is of an advanced type and is sufficiently comprehensive to enable graduates with suitable practical experience to prepare for higher degrees and diplomas. Emphasis is placed on clinical and laboratory teaching, supplemented by lectures and demonstrations. Each Institute has a reference library, and takes the current journals relevant to its specialty. Most Institutes run short courses for consultants, and many of them have one-day courses for registrars. Short courses and other forms of continuing education for general medical and dental practitioners and local-authority medical officers are arranged at hospitals throughout the four Metropolitan regions, with the assistance of the Regional Advisers in postgraduate medical and dental education. The Federation has arranged an eighth series of advanced lectures, entitled The Scientific Basis of Medicine, to be delivered two afternoons a week, at 5.30 P.M., at the London School of Hygiene and Tropical Medicine, during the autumn and winter terms of the 1957–58 session. The lectures are designed especially for research-workers and specialists in training and are open to all registered medical practitioners without fee. Further details are given in the advertisement columns of this issue. Three lectures on the Scientific Basis of Dentistry will be given early in 1958.

It is essential for prospective postgraduate students from abroad to make their arrangements well in advance, and those who desire the assistance of the central office of the Federation are advised to get in touch with the Director of the Federation, Prof. Sir Francis Fraser, M.D., F.R.C.P., at the central office, 18, Guilford Street, London, W.C.1, as far in advance of their arrival in this country as possible. Those sponsored by their universities, governments, or other official bodies receive first consideration in the allotment of vacancies. Established specialists from overseas, here for a short time, who wish to see something of the practice of this country, are always welcome; they are regarded as visiting colleagues, and the experts in their specialties are always ready to receive them and let them accompany them in their work and teaching. An information bureau of postgraduate activities in London and other university centres is maintained at the central office.

The Federation awards annually a number of travelling fellowships, for the purpose of studying abroad, to graduates working in medical or dental schools or teaching hospitals of the University of London.

The POSTGRADUATE MEDICAL SCHOOL OF LONDON is associated with the Hammersmith Hospital. It has university departments in medicine, surgery, and pathology. The teaching in the clinical departments is based on ward work which is supplemented by lectures during three ten-week terms starting in January, April, and October. A course for the university diploma in clinical pathology, lasting one year, is available for a limited number of selected students. The department of radiology of the hospital provides courses for the diplomas in medical radiology of the Conjoint Board. A year's course in anæsthesia, consisting of lectures and clinical training, is also provided. All these courses begin in October. Facilities for research are available for selected students.

Address: Ducane Road, London, W.12.

The INSTITUTE OF BASIC MEDICAL SCIENCES comprises the departments of anatomy, physiology, and pathology of the Royal College of Surgeons of England. The Institute coöperates with other specialist institutes of the Federation in providing facilities for practical work and instruction in the basic medical sciences. There are opportunities for research for selected graduates. Full-time and part-time courses of 14 weeks' duration suitable for candidates for higher degrees and diplomas, begin in February and September. A two-month revision course for primary F.D.S. candidates is held twice a year beginning in January and June.

Address: Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2.

The INSTITUTE OF CANCER RESEARCH: ROYAL CANCER HOSPITAL comprises the Chester Beatty Research Institute and parts of the departments of physics and radiotherapy at the Royal Marsden Hospital. The Institute is concerned with all aspects of research into the causation and treatment of cancer, with the training of research-workers in this field, and with advanced teaching in biophysics, radiotherapy, and problems of atomic energy. There are laboratories for chemical, biochemical, and histological investigations into cancer and allied diseases. Facilities are afforded to those wishing to pursue research in the clinical and pathological aspects of cancer or the physical and biological foundations of medical radiology, and who may be working for higher degrees, such as the PH.D. The department of radiotherapy gives a lecture and demonstration course of one week's duration in May and November annually primarily for doctors from overseas, and accepts candidates to train for the diploma in medical radiotherapy. A course of lectures for students studying for the M.SC. degree in biophysics commences in October.

Address: Fulham Road, London, S.W.3.

The INSTITUTE OF CARDIOLOGY is associated with the National Heart Hospital. Six appointments in senior-registrar and registrar grades are available in the hospital and the Institute to provide specialised training for postgraduates who have already had a sound grounding in general medicine. Full-time and part-time courses of instruction of about eleven weeks' duration are held three times annually, starting in January, April, and October, and two or three short intensive courses of lectures and demonstrations are held each year in February, June, and November; the June course is usually for general practitioners.

Address: 35, Wimpole Street, London, W.1.

The INSTITUTE OF CHILD HEALTH is associated with The Hospital for Sick Children and the Postgraduate Medical School at Hammersmith Hospital; the Queen Elizabeth Hospital for Children, Hackney, also participates in the clinical teaching of the Institute. The Province of Natal Model Welfare Centre offers facilities for the study and care of the healthy child. The Institute provides tuition throughout the year in three terms of three months each, and in addition a series of lectures by specialists in various spheres is given each term. Clinical clerkships are available for selected students.

Address: The Hospital for Sick Children, Great Ormond Street, London, W.C.1.

The INSTITUTE OF DENTAL SURGERY is associated with the Eastman Dental Hospital. The object of the Institute is to provide postgraduate training in the special branches of preventive and therapeutic dentistry by means of clinical experience, lectures, demonstrations, and research. Courses of various lengths are held from time to time in children's dentistry, orthodontics, conservative dentistry, periodontology prosthetic dentistry, oral surgery, and oral pathology. For candidates preparing for the F.D.S. of the Royal College of Surgeons, courses lasting eight months are held twice yearly commencing in October and April. For selected students junior staff appointments are available for this period. In April and October there are revision courses, lasting eight weeks, suitable for candidates for the final F.D.S. examination. A course in orthodontics, of six months' or a year's duration, commences in October.

Address: Eastman Dental Hospital, Gray's Inn Road, London, W.C.1.

The INSTITUTE OF DERMATOLOGY is associated with St. John's Hospital for Diseases of the Skin. Throughout the year clinical teaching takes place daily in the outpatient department and twice weekly at the inpatient department at Homerton. Tutorials in clinical dermatology and histopathology of the skin are given twice

weekly during term time. The year's lecture course runs from October until the end of June. During this period there are also weekly clinical demonstrations. In April special short courses in histopathology and in medical mycology are held. There are facilities for study and tuition in pathology, including mycology, radiotherapy, and physiotherapy. Advanced students may also be eligible for clinical and research assistantships, the former of which are competitive. A discussion of cases of special interest, to which students attending the courses are invited, takes place once a week.

Address: St. John's Hospital for Diseases of the Skin, Lisle Street, Leicester Square, London, W.C.2.

The INSTITUTE OF DISEASES OF THE CHEST is associated with the Hospitals for Diseases of the Chest (the Brompton and London Chest Hospitals). On the medical side, a comprehensive full-time course is conducted for a limited number of graduates who are specialising in chest diseases, during the two terms beginning in October and January, and a more selective one during the summer term. A larger number can be accepted for part-time study, which is suitable for those reading for higher medical diplomas. Clinical instruction in thoracic surgery, including cardiac surgery, is also given during university terms. Part-time instruction in radiology of the chest is given for trainee radiologists. Clinical demonstrations and lectures open to the medical profession are given each week.

Address: Brompton Hospital, London, S.W.3.

The INSTITUTE OF LARYNGOLOGY AND OTOLOGY is associated with the Royal National Throat, Nose and Ear Hospital. There is daily clinical teaching throughout the year. The whole-time courses held twice yearly include: basic sciences, three months; intensive lecture course, six weeks; practical revision course, two weeks; advanced revision course, two weeks. Short courses on special aspects (such as endoscopy, audiology, pathology, aural surgery, and malignant conditions) are given from time to time.

Address: 330/332, Gray's Inn Road, London, W.C.1.

The INSTITUTE OF NEUROLOGY is associated with the National Hospital and the Maida Vale Hospital for Nervous Diseases, which jointly form a teaching hospital. The teaching is mainly by attendance on the hospital practice, supplemented by lectures and demonstrations. Two courses in clinical neurology are held annually commencing in January and October. Clinical instruction in neurosurgery is given throughout the year. Courses of clinical demonstrations (two weekly) are held several times a year. A course in the technique and clinical application of electro-encephalography is held jointly with the Institute of Psychiatry twice a year. Advanced students are appointed as clinical clerks in the wards or attached to the special departments and research laboratories.

Address: National Hospital for Nervous Diseases, Queen Square, London, W.C.1.

The INSTITUTE OF OBSTETRICS AND GYNÆCOLOGY is associated with Queen Charlotte's Maternity Hospital, the Chelsea Hospital for Women, and the Department of Obstetrics and Gynæcology at the Postgraduate Medical School. The teaching is based on ward work and is supplemented by lectures and demonstrations during two terms of thirteen weeks' duration, which commence in March and September. Short intensive courses of a fortnight's duration, held in June and December each year, are suitable for students preparing for the higher qualifications. A week's course for general practitioners is held twice a year.

Address: Chelsea Hospital for Women, Dovehouse Street, London, S.W.3.

The INSTITUTE OF OPHTHALMOLOGY is associated with the Moorfields Eye Hospital. In addition to teaching by means of attendance on the hospital practice, a routine lecture and tutorial course, normally covering two terms of approximately eighteen weeks each, is held twice a year commencing in March and October; the first part of the course is devoted to anatomy, embryology, histology, physiology, optics and elementary clinical instruction, and the second part comprises bacteriology, pathology, operative surgery, medical ophthalmology, and all aspects of ophthalmic disease. Short courses are held in slit-lamp microscopy, orthoptics, and contact-lens practice. Clinical teaching and lectures are given at a higher level for advanced students. There are facilities for research for suitably qualified candidates.

Address: Judd Street, London, W.C.1.

The INSTITUTE OF ORTHOPÆDICS is associated with the Royal National Orthopædic Hospital. Training in orthopædics to selected graduates who have already been trained in general surgery and the basic sciences is afforded by means of clinical appointments, with opportunities for research. For graduates requiring a less extensive period of education in the specialty, and especially for those who have acquired practical experience overseas or elsewhere, advanced courses are held at various times during the year. These are of seven to ten days' duration. Twice a year, in the spring and the autumn, a short revision course of a week's duration in advanced clinical orthopædics is held. Both the central hospital in Great Portland Street and the country hospital at Stanmore are attended by postgraduate students.

Address: Royal National Orthopædic Hospital, 234, Great Portland Street, London, W.1.

The INSTITUTE OF PSYCHIATRY is associated with the Bethlem Royal Hospital and the Maudsley Hospital. Training normally covers three years, after experience elsewhere in general medicine, and is based on responsible hospital duties under supervision. Regular series of lectures and demonstrations are given throughout each of the university terms; clinical training continues throughout the year and includes seminars and case-discussions. Students who, because of previous experience, do not wish to take the comprehensive course are able to attend limited series of lectures and clinical instruction. For those who wish to specialise in child psychiatry a six-month course is held twice yearly. A course in the technique and clinical application of electro-encephalography is held jointly with the Institute of Neurology twice a year. A year's course in abnormal psychology for the university postgraduate diploma in psychology is available to holders of an honours degree in psychology. There are facilities for original investigations under supervision in the clinical departments and in the psychological, neuropathological, neuroendocrinological, electrophysiological, and biochemical departments.

Address: Maudsley Hospital, Denmark Hill, London, S.E.5.

The INSTITUTE OF UROLOGY is associated with St. Peter's, St. Paul's, and St. Philip's Hospitals. Comprehensive instruction is given in the wards, outpatient departments, operating-theatres, laboratories, &c., throughout the year. Weekend courses of demonstrations and lectures are held from time to time for higher examination candidates. In addition lectures on venereology are arranged occasionally in coöperation with the Medical Society for the Study of Venereal Diseases, and arrangements can be made for graduates to attend a venereal-diseases clinic. In the winter months a series of lecture-discussions on urological subjects of interest to the whole profession are held on Wednesdays at 5 P.M. Limited numbers of clinical assistants are appointed to individual surgeons for personal tuition, and there are also research assistantships.

Address: 10, Henrietta Street, London, W.C.2.

ROYAL COLLEGES, HOSPITALS, SCHOOLS, &c.

The ROYAL COLLEGE OF SURGEONS OF ENGLAND has arranged a number of lectures and demonstrations to be held at the college. A full-time clinical surgery course will be held in September and October, 1957, and in February and March, 1958. This will be limited to 15 students. In addition two series of 24 surgery lectures

will be given during October and April and at the same time clinical conferences will be arranged at selected hospitals. In anæsthesia two series, each of 40 lectures, clinical conferences, and discussion groups, will be given in October and April. Courses extending over a period of from one to two years are arranged. Periodic courses of 6 lectures in pharmacology are also arranged. Lectures and clinical demonstrations in oral, dental, and general surgery will be held in conjunction with the Institute of Dental Surgery in May and October. Lectures and courses are arranged during the year jointly with the Institutes of Laryngology and Otology, Urology, and Ophthalmology. Specialists are available for consultation on postgraduate training in general surgery, dental surgery, plastic surgery, and anæsthetics. Facilities are now available for advice on postgraduate orthopædic training through the postgraduate orthopædic committee which has its headquarters at the college. Residential accommodation is available in the college. The Institute of Basic Medical Sciences, formed jointly by the college and the British Postgraduate Medical Federation, has arranged a programme of postgraduate teaching in the basic medical sciences (see above). Information on all these courses may be had from Mr. W. F. Davis, Deputy Secretary, Royal College of Surgeons, Lincoln's Inn Fields, London, W.C.2.

The ROYAL COLLEGE OF SURGEONS IN IRELAND gives a four-month course in anatomy in preparation for the primary fellowship examinations. There are two courses in each year, one starting in October for the February examination and the other in March for the July examination, but students may join the course at any time. This is a fully comprehensive course. In addition there will be less extensive courses in physiology and pathology. Details may be had from the registrar of the college.

At ST. MARK'S HOSPITAL, City-road, London, E.C.1, surgeons wishing to specialise in proctology may attend courses of one to six months, and postgraduate students working for higher degrees may come for one to four weeks' whole-time study.

THE LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE offers a number of courses. The following last for one academic year of nine months. The course for the University of London's academic postgraduate diploma in *public health*, commencing each year at about the beginning of October, is designed primarily for qualified medical practitioners who intend to engage in any branch of preventive medicine. There are now no vacancies on the course beginning Oct. 1, 1957. Students may elect to make a special study of one of the following: (1) child health: (2) medical statistics and epidemiology; (3) mental health; (4) occupational health; (5) tropical hygiene. Occupational health as a special subject, plus practical work and attendance at clinics (arranged by the school), is recognised by the Conjoint Board and the Society of Apothecaries as fulfilling in part the requirements for entry to examination for the diploma in *industrial health*. The course for the University of London's academic postgraduate diploma in *bacteriology*, commencing about the beginning of October each year, is intended to give advanced instruction to graduates in medicine, science (including veterinary science), or pharmacy who intend to follow a career in bacteriology. There are now no vacancies on the 1957–58 course. Applications for the subsequent session must be received not later than March 1, 1958. The number of places is strictly limited. The course of study for the University of London's academic postgraduate certificate and diploma in *tropical medicine and hygiene*, commencing about the beginning of October each year, is designed to give advanced training in tropical medicine. The preliminary C.T.M. & H. course occupies approximately the first $4^1/_4$ months of the complete course. The final course consists of advanced study in one of two fields—clinical tropical medicine or tropical hygiene. The course for the University of London's academic postgraduate certificate and diploma in *applied parasitology and entomology*, commencing about the beginning of October each year, is open to candidates with acceptable qualifications in medicine, veterinary medicine, veterinary science, and science. The preliminary C.A.P. & E. course occupies approximately the first $4^1/_2$ months of the complete course, which is planned mainly for people wishing to take up research or laboratory appointments abroad. There are now no vacancies on the 1957–58 course. Applications for the subsequent session must be received not later than April 1, 1958. The number of places is strictly limited. The 5-month course for the Conjoint Board's diploma in *tropical medicine and hygiene* is held twice a year. The next courses begin on Sept. 30, 1957, and Feb. 24, 1958. A course in *statistical methods* applied to medicine and epidemiology is held annually on two days a week from about the beginning of March to about the end of June. Students without a medical qualification can be accepted. A ten-week course in *environmental control* is held twice a year, commencing next on Sept. 30, 1957, and Feb. 24, 1958. Although intended primarily for health inspectors from abroad, the course is so planned as to be of value to medical officers and others interested in the health aspects of environmental control both at home and abroad.

The ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE conducts courses of instruction (starting annually in March and September) covering the syllabuses for the examinations of the Conjoint Board for the diplomas in public health and in industrial health. The next courses will start on Sept. 20, 1957. Students are prepared too for the diploma in industrial health of the Society of Apothecaries. All tuition may be whole-time or part-time. Lectures are given by the internal teaching staff of the institute and by external lecturers. For the diploma in public health, attendance at the health department of a local authority and fever hospital is arranged, and there are visits to places of importance to the public health. For the industrial-health course, practical sessions are arranged at appropriate clinics and departments of hospitals, and arrangements are made with various medical officers and others in representative industries for visits to works under their supervision. Full information, entry forms, and prospectuses may be obtained from the Acting Dean, 23, Queen Square, London, W.C.1, or from the Acting Secretary, 28, Portland Place, London, W.1.

The Institute is a medical corporation, incorporated by Royal Charter. Under its present name, the Institute came into being in October, 1937, as a result of the amalgamation of the Institute of Hygiene and the Royal Institute of Public Health, upon the granting of a supplemental Royal Charter to the Institute of Hygiene. Among its main objects and work are:

Laboratory Work.—The bacteriological, chemical, and serological laboratories are available for the examination and investigation of pathological specimens, water, milk, sewage, &c.

The Museum of Hygiene.—The Institute maintains a permanent educational health exhibition, open free to the public daily from 9.30 A.M. to 5 P.M., at 28, Portland Place, W.1.

Lectures by medical and scientific authorities upon topics relating to public health and hygiene are given at spring and autumn sessions. The Harben and the Bengué Memorial Award lectures are delivered annually at the Institute, and the Blackham lecture triennially.

Examinations for the certificate and the diploma of the Institute are held twice yearly (in January and June) in [illegible]on and at centres throughout the British Isles in the [illegible]g separate subjects: general hygiene, school hygiene, and [illegible]hercraft and child welfare.

The TAVISTOCK CLINIC is an outpatient centre devoted to psychotherapy both of adults and of children on broadly psycho-analytic lines, and to providing training in certain skills in this field. Special attention is at present being given to the development of techniques in handling parents of disturbed children, to marital problems, and to group therapy of adults. In addition, the clinic and the associated Tavistock Institute of Human Relations are engaged in research in the fields of child development, personality, preventive psychiatry, and applied social science. A number of registrar and senior registrar posts are established in the adult and the children's and parents' departments. Personal analysis is provided for

as part of the training. The following courses of training are available; (1) a two-year full-time course in child psychiatry (for registrars); (2) a two-year part-time course in elementary psychotherapy, including group experience (open to selected trainee psychiatrists from other N.H.S. institutions); (3) introductory courses for general practitioners dealing with the patient-doctor relationship and with psychological factors in ill health; (4) a more advanced two-year course in psychotherapy in general practice for limited numbers of family doctors; (5) several courses in the Rorschach method of personality assessment (by arrangement with the Institute of Human Relations), open to doctors with relevant experience. In addition there are training courses in clinical psychology, educational psychology, advanced social case-work, and child psychotherapy, open to graduate psychologists (non-medical) and social workers, in some instances during their tenure of trainee posts or fellowships. Both sides of the clinic also conduct regular case-conferences and other types of instruction with their internal students which may be open to a limited number of suitably qualified professional workers from home or overseas on request and by permission. Further information may be had from the Medical Director, 2, Beaumont Street, London, W.1.

The TAVISTOCK INSTITUTE OF HUMAN RELATIONS is concerned with applied social research in problems which may cover the family, the factory, the hospital, or the community. Further information may be obtained from the Secretary, Tavistock Institute of Human Relations, 2, Beaumont Street, London, W.1.

The INSTITUTE OF PSYCHO-ANALYSIS, 63, New Cavendish Street, London, W.1, provides training in psycho-analytic theory and technique. The course is part-time and lasts about four years. It includes a personal analysis, attendance at lectures and seminars (held in the evenings), and clinical work done under supervision. Students are required to obtain general psychiatric experience at other clinics and hospitals since the Institute does not set out to teach psychiatry. Completion of the course to the satisfaction of the training committee qualifies the student for independent work as a psycho-analyst. On the recommendation of the training committee, the student is elected an associate member of the British Psycho-Analytical Society and the Institute of Psycho-Analysis. Training in child analysis is available for senior students.

The FELLOWSHIP OF POSTGRADUATE MEDICINE was founded in 1918. The Fellowship, whose offices are at 60, Portland Place, London, W.1, provides a bureau of general information on postgraduate work, and also arranges various courses of instruction to suit the special needs of postgraduates whose requirements are not met by other existing programmes. The Fellowship's arrangements include:

(1) Weekend courses, occupying the whole of a Saturday and Sunday. These are given in various hospitals in such subjects as infectious diseases, general medicine, the rheumatic diseases, orthopædics, plastic surgery, and clinical surgery.

(2) Courses specially suitable for, though not restricted to, candidates for the D.C.H., D.OBST., M.R.C.P., and F.R.C.S. (final). These include general medicine, general surgery, midwifery, and children's diseases. Some are full-time courses, lasting one or two weeks; others are spread over longer periods, taking place in the mornings, afternoons, or late afternoons; they are intended particularly for postgraduates not free for full-time study.

The *Postgraduate Medical Journal*, the official organ of the Fellowship, is published monthly and contains a special section devoted to general postgraduate news and information about the work carried on in all the main centres of teaching throughout the British Isles. The Journal can be obtained by subscription or in single copies.

The TUBERCULOSIS EDUCATIONAL INSTITUTE is a body composed of representatives from the Joint Tuberculosis Council and the National Association for the Prevention of Tuberculosis. The Institute organises lecture and demonstration courses at home and overseas for doctors, and at home university centres for doctors, nurses, health visitors, social workers, and administrators. Intensive three-day clinical courses for doctors are held throughout the year at King George V Hospital for Diseases of the Chest, Godalming, and Colindale Hospital, London. Short weekend lecture courses are arranged locally for general practitioners. Particulars of courses may be obtained from the Secretary, Tuberculosis Educational Institute, Tavistock House North, Tavistock Square, London, W.C.1.

PROVINCES

Birmingham

The Board of Graduate Studies tries to provide courses of instruction for general practitioners on a scale adequate to satisfy the demands of doctors practising in Warwickshire, Worcestershire, Staffordshire, Shropshire, and Herefordshire. Practitioners from further afield, particularly Birmingham graduates, are welcomed. Extended courses in medicine and general surgery, dentistry, and midwifery are held at the teaching and regional hospitals; and weekend courses in pædiatrics are held at frequent intervals at the Children's Hospital, Birmingham, and in neurology, neurosurgery, psychiatry, and psychotherapy at the Queen Elizabeth Hospital, Birmingham, the Midland Centre for Neurosurgery, and Uffculme Clinic. In the postgraduate arrangements for general practitioners, the board coöperates closely with the Midland Faculty of the College of General Practitioners. Short intensive courses in industrial ophthalmology are held at the Birmingham and Midland Eye Hospital, usually in the month of July. The University does not offer any diplomas and, with the exception of the M.R.C.P. and the Conjoint diploma in psychological medicine, the Board of Graduate Studies does not offer any courses of instruction for higher and specialist examinations. In order to assist the junior staff of regional mental and psychiatric hospitals, courses of instruction for part I and part II of the D.P.M. of the Conjoint Board are held in alternate academic years. M.R.C.P. courses are held every one or two years. The board arranges attachments for increasing numbers of postgraduates from abroad who wish to come to Birmingham for long or short periods as observers or to work in the various departments of the medical school or teaching or regional hospitals. In conjunction with the department of social medicine of the University, the board has a number of research projects in progress in which the field work is being done by general practitioners. The chairman of the Board of Graduate Studies is Dr. A. G. W. Whitfield, The Medical School, Edgbaston, Birmingham, 15.

Bristol

The degrees of doctor of medicine (M.D.), master of surgery (CH.M.), and doctor of philosophy (PH.D.) are open to graduates of other universities, but only to those candidates who have pursued original research in the university for not less than two years. In effect, this regulation means that these higher degrees are open only to those graduates of other universities who hold appointments on the staff of the University or of one of the Bristol hospitals. The university diploma in psychological medicine is in abeyance. The University offers a diploma in public health, and a course will be held in the session 1957–58. A few postgraduates are accepted for training for the D.M.R.D. and D.M.R.T. (Conjoint) and arrangements can sometimes be made for suitable candidates to hold a part-time post in the Bristol hospitals while doing the course. A course in child health lasting three months usually begins in October of each year. Refresher courses for general practitioners consist of Sunday morning lecture-demonstrations in Bristol and occasional intensive weekend courses at hospitals in various parts of the South-West region.

Cambridge

The School of Postgraduate Teaching and Clinical Research includes the departments of experimental medicine, human ecology, medicine, and radiothera-

peutics. In the John Bonnett Clinical Laboratories, pathological and biochemical services of the United Cambridge Hospitals are provided by university teaching officers under the direction of the professors of pathology and biochemistry. Particulars of the research activities of the school are given in the departmental annual reports, which are published in the Cambridge University *Reporter* in February each year. From their inception, the medical school and its constituent departments have been closely linked with the United Cambridge Hospitals. It was hoped to provide temporary accommodation for the establishment of a neurosurgical unit in a former nursing-home, but on detailed investigation the cost of converting the premises was found to be more than would be justified as an interim measure. Alternative plans are now under discussion between the Board of Governors and the Ministry of Health for increasing the first stage of the development of the new hospital site on Hills Road by building a neurosurgical unit there. Extensions of the John Bonnett Clinical Laboratories are in progress and it is hoped that the first stage, which includes extended post-mortem facilities, will be completed by the autumn. A small extension of the Doughty X-ray Clinic has been completed during the year. Between October and July in each academic year special sessions are devoted to teaching by members of the consultant staff of the United Cambridge Hospitals. A small number of undergraduate students are admitted to these teaching sessions. Other teaching activities include a clinicopathological conference held on the third Wednesday of each month, which gives an opportunity for general practitioners and others to meet the staffs of the teaching hospital and of the various departments of the medical school. One-day symposia on subjects of particular interest to general practitioners are held monthly on Saturdays throughout the academic year. These symposia usually take the form of lecture-discussions followed by case-demonstrations. Residential courses in midwifery are available for undergraduate and postgraduate students at the Maternity Hospital. All postgraduate courses and symposia are open, without fee, subject to the terms of the Ministry of Health scheme, to practitioners who are under contract with an executive council of the National Health Service, and who have not less than 500 (or in the case of a rural practice 250) persons on their N.H.S. lists. Practitioners who do not qualify for a grant under the Ministry of Health scheme are, in general, charged fees at rates corresponding with those which otherwise would have been payable by the Ministry. Further details of postgraduate facilities may be obtained from the Secretary of the Medical School, Tennis Court Road, Cambridge.

Durham

A part-time course for the diploma in public health began in January of this year, 8 candidates being accepted for the course, which extends over five academic terms. Courses for part I and part II of the diploma in psychological medicine began in October, 1956, 6 candidates being accepted for part I and 8 for part II. Refresher courses for general practitioners were held during the year. These consisted of intensive weekend courses in pædiatrics and obstetrics and extended courses consisting of nine Tuesday or Thursday afternoon sessions in various subjects. In addition several local practitioners have attended two-week resident courses in obstetrics. It is proposed to hold weekend courses in medicine, psychiatry, pædiatrics, and obstetrics during the early autumn. Postgraduate instruction in anatomy, physiology, pathology, bacteriology, and other subjects is available by agreement with the professors of the departments concerned. Several postgraduate students from overseas have been provided with suitable courses and research facilities leading to higher degrees.

Leeds

The University of Leeds grants two postgraduate diplomas, the diploma in public health and the diploma in psychological medicine. Both are now part-time courses, that for the diploma in public health being five terms. The course for the diploma in psychological medicine covers eight academic terms. Extended refresher courses for general practitioners, comprising one half-day session a week for six weeks, and weekend referesher courses on special topics are arranged from time to time both in the teaching hospitals and in regional hospitals. The secretary of the postgraduate committee is Dr. T. A. Divine, School of Medicine, Thoresby Place, Leeds, 2.

Liverpool

Full-time postgraduate courses have continued as in previous years. Out of a total of 713 students in the medical school, 180 are postgraduates. 15 attended the course in general surgery, 17 in orthopædic surgery, 17 in public health, 11 in anæsthesia, 18 in radiodiagnosis, 8 in radiotherapy, and 57 in tropical medicine and hygiene. 10 candidates have taken the course in psychological medicine; this is part-time and covers a period of two years and is suitable for candidates for the Conjoint D.P.M. The course in general surgery is suitable for candidates who have already passed the primary examination for the F.R.C.S., but candidates for the course in orthopædic surgery must already hold the F.R.C.S. to become eligible to take the examination for the degree of M.CH.ORTH. The courses leading to the D.M.R.D. and D.M.R.T. extend over two years; candidates are usually found registrar appointments during the second year. In the course in anæsthetics, students are found appointments in recognised general hospitals for the purpose of gaining practical experience. General-practitioner refresher courses have been held at Liverpool Maternity Hospital and Mill Road Maternity Hospital (62 doctors attended); at Walton Hospital (46 doctors attended); and at Broadgreen Hospital (50 doctors attended). A five-day intensive course in anæsthetics for general practitioners, limited to 14 doctors, was arranged by Dr. T. C. Gray, reader in anæsthesia. Two more extended courses, at Sefton General Hospital and at St. Paul's Eye Hospital and the Ear, Nose and Throat Infirmary have been arranged for the latter part of the session. Further information regarding University postgraduate courses may be obtained from the dean of the faculty of medicine.

The Liverpool School of Tropical Medicine offers a course of instruction for the diploma in tropical medicine and hygiene granted by the University of Liverpool. Two such courses are held each year, starting in the middle of September and at the beginning of January and continuing for approximately three months. Only those students who hold a medical qualification registrable in the United Kingdom or otherwise recognised by the University, and who have attended the approved course of instruction in this school, are eligible to sit for this diploma. The school also provides courses in parasitology and entomology for students taking the diploma in public health granted by the University of Liverpool. Courses of instruction in veterinary parasitology and entomology are given during each academic session to Liverpool University undergraduates taking the M.R.C.V.S. diploma and B.V.SC. degree.

Manchester

Courses in preparation or the diplomas in psychological medicine, public health, radiodiagnosis, and radiotherapy have been held. A course for the diploma in bacteriology is conducted by the faculty of science. Intensive postgraduate courses in gynæcological pathology and in industrial health have also been held. Sunday-morning ward rounds for general practitioners have been conducted at a number of hospitals, and during the Michaelmas term of 1957 a series of lecture-demonstrations are to be held on alternate Sunday mornings in conjunction with the College of General Practitioners. The Dean of Post-Graduate Medical Studies is Mr. R. L. Newell, F.R.C.S., who is available for consultation by appointment.

Oxford

The University committee responsible for postgraduate medical studies was recently reconstituted and its duties made the subject of a new University statute. The first duties of this committee are to meet the obligations imposed upon the University by Act of Parliament—namely, keeping general practitioners informed of the latest developments in professional knowledge, and approving hospitals and posts therein for preregistration

purposes. Facilities for postgraduate medical studies are available in the Nuffield professorial departments of the University under the professors of medicine, surgery, obstetrics and gynæcology, anæsthetics, orthopædic surgery, and plastic surgery. Certain clinical appointments on the staff of these departments are open to specialist trainees from the Commonwealth. In addition to the provision made in these departments for the training of specialists, there are approximately 20 trainee appointments in the teaching hospitals (the United Oxford Hospitals) and 11 in certain departments of selected non-teaching hospitals of the Oxford region. These appointments (senior registrars) are in the following branches of medicine: general medicine, pædiatrics, psychological medicine, chest diseases, pathology, general surgery, orthopædics and accident services, otolaryngology, ophthalmology, obstetrics and gynæcology, neurosurgery, plastic surgery, dental surgery, and radiology. 6 of these are "paired" posts, the holders of which spend part of their period of training in a teaching hospital and part in a non-teaching hospital by mutual agreement. Facilities for the continuing education of general practitioners are provided in hospitals at Oxford, Reading, Aylesbury, and Northampton. Most departments of the United Oxford Hospitals may be visited by general practitioners on certain days throughout the clinical year (September to July). Practitioners may follow either an intensive course of a week or a fortnight's duration (when programmes are arranged to suit individual requirements) or an extended course spread over a number of weeks or months. In addition special short courses are arranged for general practitioners. All inquiries should be made to the Director of Postgraduate Medical Studies, Osler House, 43, Woodstock Road, Oxford, from whom further details of long and short courses may be obtained.

Sheffield

Information is being collected about the duties undertaken by and the educational facilities available to those holding pre-registration posts in the Sheffield region. The exchange, at intern level, with the Albany Medical School, New York, again operated very satisfactorily during 1956–57. In 1957–58, though Sheffield will send an intern to Albany for his preregistration year, various factors unfortunately prevent an "exchange" on this occasion. Discussion still continues as to the value of interchange of senior registrars between teaching-hospital and regional-hospital appointments. Well-established postgraduate teaching activities still continue (partly in liaison with the Sheffield faculty of the College of General Practitioners): regular ward visits or demonstrations during autumn and spring, an intensive refresher course in the late summer, and less formal arrangements for individual students desiring clinical experience in various spheres, or working for higher examinations. A formal part-time course in preparation for the University's diploma in public health began last October. Though hopes for the development of a department of psychiatry have been disappointed because of financial stringency, nevertheless the advent of a professor, albeit honorary, has brought the University into the sphere of postgraduate work in this specialty, and practical results are already emerging.

WALES

Cardiff

The arrangements under the new regulations for the D.P.H. course came into force this session, and a class of 11 part-time students is now pursuing this course, in conjunction with part-time public-health appointments in the area. Two postgraduate courses for general practitioners are held each year, and are attracting an increasing number of practitioners from over the border. In addition four weekend postgraduate courses in dentistry are being held for dental practitioners, and in these the regional hospitals most willingly coöperate.

SCOTLAND

Aberdeen

Fortnightly refresher courses are held each year, mainly for general practitioners, which cover recent advances in medicine, surgery, obstetrics, pædiatrics, and other specialties. From time to time extended courses of eight or ten weekly afternoon meetings are held. There is also occasionally a Sunday-morning course for general practitioners when they can attend two lectures each Sunday for seven weeks, on subjects in medicine, surgery, pædiatrics, and midwifery. The main postgraduate training is that given to registrars in all the departments of medicine. In these posts registrars are rotated round the different wards and hospitals in their own specialty, and also they spend periods of three months in related departments. A surgical registrar, for example, will go round the general surgical wards of the region but will also receive training in thoracic surgery, neurosurgery, orthopædics, pædiatric surgery, and otolaryngology. In the same way a medical registrar will act for a time in a similar position in the children's and fever hospitals.

Edinburgh

Postgraduate teaching in Edinburgh is arranged by the University in collaboration with the Royal Colleges of Physicians and Surgeons of Edinburgh. The courses are administered by the Edinburgh Post-Graduate Board for Medicine and cover the subjects of internal medicine, general surgery, and basic medical sciences, in addition to refresher courses for general and dental practitioners. Two courses in internal medicine, lasting twelve weeks, start in April and October each year. These courses comprise lectures, lecture-demonstrations, clinical teaching, and clinical-pathological demonstrations; they are suitable for graduates wishing to specialise in medicine or who require a refresher course in the current outlook on internal medicine. Two courses in general surgery are held each year, starting in March and October. These courses last twelve weeks and provide coördinated instruction in general surgery and in the specialist branches of surgery. Clinical teaching in the wards of the Edinburgh Royal Infirmary and other general and specialist surgical units in the city has been arranged. Graduates are thus able to spend a period in each unit, following the work of the department and obtaining systematic instruction. A comprehensive course in the medical sciences of anatomy, physiology, pathology, bacteriology, and biochemistry is held in the summer; three hundred hours of instruction are given in this course, over a hundred of which are devoted to practical teaching, including work in an anatomy department. This course is suitable for those requiring a final preparation in these subjects. It is desirable that those taking this course should already have considerable basic knowledge. Similar basic-science courses of ten weeks' duration, starting in October and March, are organised by the Royal College of Surgeons under the ægis of the Post-Graduate Board.

The fourteen-day general-practitioner course, held in May each year, provides teaching either at the bedside or by means of lecture-demonstrations. Emphasis is laid on recent advances in treatment, and free discussion, as well as constructive criticism by members of the course, is encouraged. Instruction for local general and dental practitioners is arranged throughout the autumn term. In addition, courses of one day's duration, on selected subjects, are held at intervals throughout the year. Courses are often booked up several months in advance, so those intending to apply should do so early. Applicants should write, giving particulars of their medical qualifications and postgraduate experience, to the Director of Post-Graduate Studies, Surgeons' Hall, Edinburgh, 8.

Glasgow

Glasgow University Post-graduate Medical Education Committee, representing the University and the Royal Faculty of Physicians and Surgeons of Glasgow, is offering the following courses during the coming session. A nine weeks' part-time course of instruction in anatomy, physiology, biochemistry, pathology, and bacteriology will be held, as in previous years, from October to December. The course is suitable for candidates preparing for the primary examinations for the surgical fellowships, and will provide a total of approximately 180 hours of instruction. The course is organised primarily for the junior staff of hospitals in the Western Region of Scotland, but it is also open to other applicants. A

modified form of the course is available for trainees in anæsthetics reading for the primary examination of the F.F.A. Clinical attachments of one to three months' duration can be arranged in general medicine, general surgery, and various specialties for those proceeding to higher qualifications. The Glasgow medical school provides an annual course for the diploma in public health, and also a course for the diploma in industrial health in any year in which there are sufficient applicants. Short courses in other specialties are arranged from time to time when the demand arises, and are advertised in the medical journals. For the ensuing session a short course in chemotherapy and a course in mental deficiency have already been arranged. The department of psychological medicine will hold a course extending from January to June, 1958, for candidates reading for the D.P.M. Training in radiodiagnosis and radiotherapy, recognised for the D.M.R.D. and D.M.R.T., is available. Refresher courses for general practitioners are also held, and they consist largely of clinical demonstrations, but some lectures on modern methods of treatment are included. A recent very successful addition to the range of postgraduate courses has been the institution of short intensive courses on the use of radioactive isotopes. These courses are organised by the staff of the regional physics department, which was instituted by the regional hospital board to advise and assist their hospitals on matters concerned with the use of isotopes and electronic apparatus.

St. Andrews

The postgraduate training programme in the university is at present being reorganised and it is hoped to offer combined clinical and medical science courses beginning in October, 1958. The director of postgraduate education is Prof. R. B. Hunter, F.R.C.P.E., department of pharmacology and therapeutics, Queen's College, Dundee.

IRELAND

Dublin

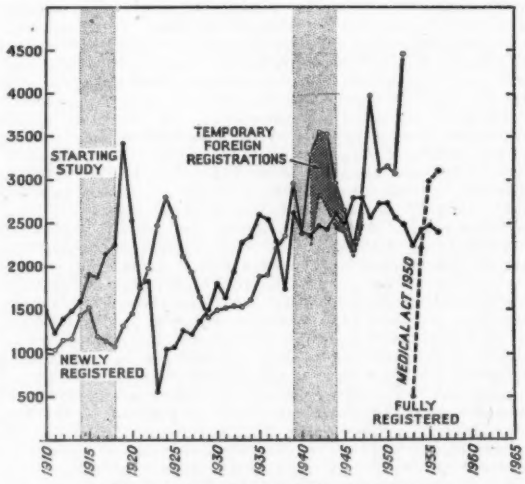
The only postgraduate course at present available for other than Dublin graduates is that for the diploma in gynæcology and obstetrics. The number of places in the course has been limited to 15. The examination for the diploma in psychological medicine is now open to graduates of other universities. The diploma in public health is temporarily in abeyance. Arrangements are being made for a postgraduate course in clinical medicine during the long vacation in 1957, open only to medical graduates of the University of Dublin.

REGISTRATION

NO-ONE is a legally qualified medical practitioner unless his name appears on the Register kept by the General Medical Council. In the field of medical education the Council has a statutory responsibility for ensuring that the courses of study and examinations for any qualification conferring a title to registration do not fall below a proper minimum standard. The Council, through its Disciplinary Committee, is also responsible for discipline within the profession. The Medical Act, 1956, regulates the constitution and functions of the Council and the procedure of medical registration and discipline. The new Act superseded a great many statutory provisions that had preceded it. The Act, and Orders and Regulations made under it, provide that a person will not be eligible for full registration until he has, after passing a qualifying examination, served as a house-officer in approved hospitals or institutions for twelve months. During this period he would be provisionally registered.

The approximate number of second-year students admitted to medical schools in the United Kingdom and in Ireland was 2734 during 1949–50, 2725 during 1950–51, 2565 during 1951–52, 2494 during 1952–53, 2280 during 1953, 2437 during 1954, 2485 during 1955, and 2415 during 1956.

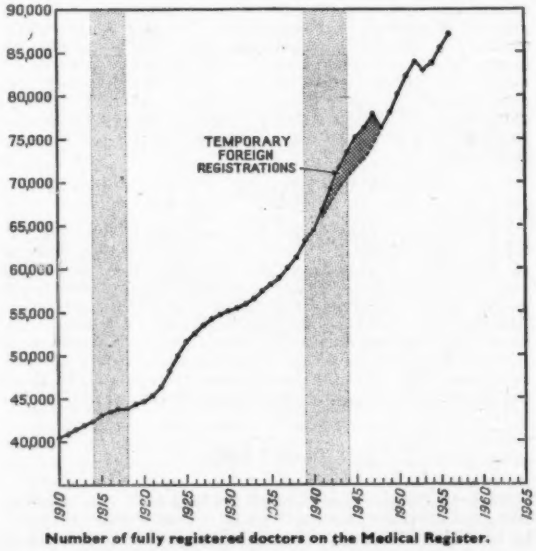
The numbers newly registered (including Commonwealth practitioners) were: in 1950, 3160; in 1951, 3075; in 1952, 4493; in 1953, 2320 (507 fully registered and 1813 provisionally registered); in 1954, 4542 (2222 fully registered and 2320 provisionally registered); in 1955, 5310 (2992 fully registered and 2318 provisionally registered); and in 1956, 5522 (3113 fully registered and 2409 provisionally registered). The totals for 1954–56 include, of course, a considerable proportion of those provisionally registered in the previous year.



Numbers starting study and registering.*

* The numbers shown as starting study are taken from the Medical Students' Register up to 1938; and since then from returns made by the medical schools to the General Medical Council. Both forms of notification are incomplete for certain years. Starting with 1953, the figure is based on the annual examination returns and covers the calendar year instead of the academic year as formerly.

The number obtaining provisional and full registration in 1953 was much lower than in the preceding five years. This is attributable to two things: (1) some people who would normally have registered in 1953 took special steps to obtain registration before the end of 1952 in order to avoid the preregistration year; and (2) the lengthening of the curriculum at certain Scottish universities meant that fewer than usual qualified and became provisionally registered in 1953. The striking increase in the number of newly registered doctors in 1952 (4493 as against 3075 in 1951) was largely due to the addition of 1452 names to the Commonwealth List in 1952 (as compared with 471 in 1951).



Number of fully registered doctors on the Medical Register.

The Defence Services

Royal Naval Medical Service

The Medical Service of the Royal Navy affords, to medical practitioners who are attracted by the prospect of sea service and work with the Royal Navy, a wide opportunity to practise their profession in an attractive environment. A background of naval tradition naturally permeates the Royal Naval Hospitals and Naval Training Establishments, as well as Her Majesty's ships. Officers serving on the permanent list are encouraged to specialise in all branches of medicine, and they are given full facilities to obtain higher qualifications. Courses of post-graduate study are carried out not only in naval hospitals but also at civilian teaching centres. There is a wide variety of subjects comprised in the title "naval medicine," and it might often be claimed that certain of these subjects are unique. They include aviation medicine, the physiology of diving, the physical aspects of service afloat and ashore, commando service, tropical diseases, and last, but by no means least, industrial hygiene. Furthermore, a naval medical officer is no longer concerned with the care of the sailor alone, but must also have up-to-date knowledge of the diseases of women and children so that he may attend the needs of the W.R.N.S., members of the Q.A.R.N.N.S., Naval V.A.D.s, and the wives and children of Servicemen and Admiralty personnel serving abroad.

The Royal Naval Medical Service offers a life career with service on the active list up to 55 for all officers, to 57 for surgeon captains, and to 60 years of age for surgeon rear-admirals. Provision is made in the regulations for counting previous experience, both service and professional. All previous commissioned service as a medical officer in one of the Armed Forces is allowed to count in full, and all non-medical commissioned service is allowed to count as half. Civilian hospital experience, and also experience of a special nature in private practice which is recognised by the Medical Director-General as warranting additional seniority, may be allowed to count up to a limit of seven years in all.

The additional seniority will be reckoned as service for pay and promotion but not for retired pay or gratuity. Leave is granted to officers at the following scales: in the United Kingdom, 42 days a year; when appointed to H.M. Ships on general service, at the rate of 3 days a month; when on foreign service, 14 days local leave a year with a further 2 days for each month abroad on return to the United Kingdom.

RATES OF PAY OF MEDICAL OFFICERS IN THE ROYAL NAVAL MEDICAL SERVICE

Rank and service	Single			Married		
	Non-specialist	Junior specialist	Senior specialist	Non-specialist	Junior specialist	Senior specialist
	£	£	£	£	£	£
Acting surgeon lieutenant	584	..	..	921	..	..
Surgeon lieutenant	693	..	..	1031	..	..
After 1 year in the rank	730	..	..	1067	..	..
„ 2 years in the rank	766	..	..	1104	..	..
„ 3 „ „ „ „	803	894	..	1140	1231	..
„ 4 „ „ „ „	930	1022	..	1268	1359	..
„ 6 „ „ „ „	985	1076	..	1323	1414	..
Surgeon lieutenant-commander ..	1204	1295	..	1542	1633	..
After 2 years in the rank	1314	1405	1533	1651	1742	1870
„ 4 „ „ „ „	1423	1514	1642	1761	1852	1980
„ 6 „ „ „ „	1478	1569	1697	1815	1907	2034
Surgeon commander	1551	1642	1770	1934	2025	2153
After 2 years in the rank	1660	1752	1879	2044	2135	2263
„ 4 „ „ „ „	1770	1861	1989	2153	2244	2372
„ 6 „ „ „ „	1825	1916	2044	2208	2299	2427
Surgeon captain	1971	1971	2080	2354	2354	2463
After 2 years in the rank	2025	2025	2135	2409	2409	2518
„ 4 „ „ „ „	2080	2080	2244	2463	2463	2628
„ 6 „ „ „ „	2135	2135	2244	2564	2564	2673
„ 8 „ „ „ „	2244	2244	2244	2673	2673	2673
Surgeon rear-admiral	2920	2920	2920	3394	3394	3394
Surgeon vice-admiral	3650	3650	3650	4124	4124	4124

The married rates shown apply to officers over 25 years of age only. When the officer is not accommodated or messed, additional allowances are paid.

Entry in the first place is for a short-service commission of either three or four years which may be extended. During this time application may be made for transfer to the permanent list. Medical practitioners who undertake their National Service in the Royal Navy are also eligible to apply to transfer to the permanent list. The normal career for a medical officer provides for promotion to the full rank of surgeon lieutenant after one year's service, and to surgeon lieutenant-commander after a further seven years' service. Surgeon lieutenant-commanders are promoted to surgeon commander by selection at about their 15th year of total service and surgeon commanders are promoted by selection to surgeon captain about their 23rd year of total service. Subsequent promotion to surgeon rear-admiral is by selection.

Rates of pay are shown in the accompanying table. Medical officers are also eligible for *allowances*, in addition to the basic rates of pay, on the same scale and under the same conditions as for other officers of equivalent rank. These include travelling expenses, subsistence allowance, and passages for wives and families. Officers who transfer to permanent commissions after a minimum of one year's service will be paid a permanent commission grant of £1500 (taxable).

The maximum rates of retired pay in addition to terminal grants are payable to officers who complete certain specified periods of service. Officers allowed to withdraw who are ineligible for retired pay will be eligible to receive gratuities.

Further information may be obtained from the Medical Department, Admiralty, Queen Anne's Mansions, St. James's Park, London, S.W.1.

ROYAL NAVAL DENTAL SERVICE

Dental officers are entered for Naval service under similar conditions to those applying to medical officers. Information concerning conditions of service can be obtained from the Medical Department of the Navy, Queen Anne's Mansions, St. James's Park, London, S.W.1.

Royal Army Medical Corps

There is, at the moment, a limited requirement for trained specialists, particularly ophthalmologists, oto-laryngologists, and radiologists. In the main, however, the R.A.M.C. seeks applications from young recently qualified practitioners.

Non-specialist Career

66% of medical officers will be employed on general-practitioner duties. After attending the junior officers' course at the Royal Army Medical College, they start their career as regimental medical officers where they become conversant with the soldier and his environment, the objects of the Army, and the requirements from its medical service in peace and war. They will, later, serve overseas where, as a regimental medical officer or in charge of a medical reception station or small hospital, they will be able to study the causation, prevention, and treatment of tropical diseases, the effects of climate, &c. On their return to the United Kingdom, they attend the senior officers' course; the first $2^1/_2$ months are spent in study at the Royal Army Medical College, Millbank, and the next 3 months in a special postgraduate course at selected teaching hospitals. At this stage officers may opt to remain at general medical duties or take up field training or junior staff appointments. For the more senior appointments the requirements are a sound background of clinical and preventive medicine to meet their advanced responsibilities in the administration of the Army Medical Services in peace and war.

Specialist Career

Specialists are, subject to professional proficiency, employed on specialist duties up to the rank of colonel. Thereafter they may serve in this rank up to the retiring age of 57 or may be selected for promotion to brigadier either in a specialist or non-specialist capacity. The process of selection for specialist training is carried out after the junior officers' course, those applicants who are

most successful in the course examination being accepted. Those accepted are provided with excellent opportunities to obtain higher qualifications and specialist experience. There is at the moment a particular need for ophthalmologists, otolaryngologists, and radiologists.

Postgraduate Training

There are liberal arrangements for specialists and non-specialists to undergo postgraduate training throughout their career.

Employment after Retirement

All suitable medical officers (specialist or non-specialist) may be employed up to the age of 65 in appointments specially set aside for retired officers. Non-specialists are employed on general practitioner or medical administrative duties and specialists on specialist duties.

Conditions of Service

As conditions of service greatly affect a wife, married practitioners considering an army career are advised that their wives should discuss these conditions with army wives who have served at home and overseas.

The *overseas tour* is of 3 years' duration. Families of officers aged 25 or over can, in the case of most overseas stations, accompany the officer by sea or air. Local allowances are paid in certain overseas areas where the cost of living is greater than in the United Kingdom. Schools are normally available locally, and in the case of those with children between 11 and 18 years left in the United Kingdom a tax-free education allowance of up to £75 per year is paid if they attend boarding-school, or £26 a year if they attend day school and are placed in the care of a guardian. In addition special air flights, sometimes free and sometimes at reduced rates, are available to bring school-children to join their parents for the holidays. The facilities for sport and leave travel vary but are usually very good.

A *home tour*, spent in U.K. or North-West Europe, lasts at the moment 4–5 years. As a rule there is no difficulty in obtaining family accommodation or arranging schools. The education allowance referred to above is, however, subject to income-tax in the case of those serving in U.K., but not in North-West Europe.

It is the Army policy that all ranks should be given some months' warning of an impending move. This is done as much as possible but cannot always be achieved—for example, the posting of an officer after the senior officers' course may be influenced by his performance on the course and cannot be decided beforehand, and emergencies may necessitate a sudden chain of appointments and reliefs.

For those over 25 years of age, travel of families from duty station to duty station is, subject to certain conditions, at public expense. If serving on a commission of 3 years or over refund of furniture and removal expenses is payable and disturbance allowance of either £40 or £20, depending on the type of accommodation occupied, is issuable to cover incidental expenses for such moves, providing the period of duty at the new station is for at least 6 months. Furniture of those over 25 years of age, and serving for 3 years or more, who go overseas with their families, may, subject to certain conditions be stored at public expense. Family accommodation provided by the Government is at a reasonable rent—furnished accommodation for a major is, for example, £100 per year.

The comradeship of the Army extends to wives and children, but the wives of those interested will find out about this and the advantages and disadvantages of an army life far better from other army wives.

Conditions of Commissioning

The normal maximum age is 33 but allowance is made for those who have previously held commissioned rank in H.M. Forces on full pay. An antedate, counting towards pay and promotion, may be allowed for 2 years spent in civilian practice or hospitals. An additional period of up to 5 years may be allowed for specialist appointments held. An allowance is also made for previous commissioned service on full pay. This antedate counts towards the "reckonable service" mentioned below.

Promotion and Pay

Details are given in the accompanying table. In addition the following are payable:

On appointment to a permanent commission, a taxable grant of £1500.

An initial outfit allowance (in addition to certain free issues of clothing) so that officers may provide themselves with the authorised scale of uniform without expense to themselves.

Junior specialist pay .. .. .. £73 per year
Senior specialist pay .. .. .. £219 per year
Qualification pay (for Staff College graduates) .. .. £63 to £127 per year

PROMOTION AND RATES OF PAY OF R.A.M.C. MEDICAL OFFICERS

Rank	Promotion	Pay	Marriage allowance (age 25 or over)	Marriage allowance (under 25)	Ration allowance
		£	£	£	£
Lieutenant ..	—	584	338	146	100 (not taxable)
Captain ..	1 year's reckonable service	693–985	338	146	
Major	8 years' reckonable service	1204–1478	337	—	
Lieut.-colonel ..	By selection after about 17 years' service	1551–1825	383	—	
Colonel	By selection after about 23 years' service	1971–2135	383	—	
Brigadier ..	By selection	2245	429	—	
Major-general	By selection	2920	474	—	
Lieut.-general ..	By selection	3650	474	—	

The marriage allowance for officers aged 25 or over is £55 a year less when family accommodation is provided or the family accompanies the husband at an overseas station.

Retired Pay, &c.

For less than 20 years' qualifying service, there is a tax-free gratuity rising from £1000 at 10 years' service to £2800 at 19 years' service.

Pensions are payable as follows on retirement at the ages and with the reckonable service stated:

Major .. .. £625 for 22 years' reckonable service at 53 years, plus lump-sum grant of £1875.
Lieut.-colonel .. £800 for 24 years' reckonable service at 55 years, plus lump-sum grant of £2400.
Colonel .. .. £1000 for 26 years' reckonable service at 57 years, plus lump-sum grant of £3000.
Brigadier .. £1150 for 28 years' reckonable service at 59 years, plus lump-sum grant of £3450.
Major-general .. £1400 for 30 years' reckonable service at 60 years, plus lump-sum grant of £4200.
Lieut.-general .. £1600 for 30 years' reckonable service, on completion of appointment, £4800.

Deductions are made in the case of an officer whose reckonable service is less than stated above or who retired voluntarily 2 or more years before his compulsory retiring age.

Retired-officer Appointments

These may be held from the date of retirement until the age of 65. The annual salary ranks from £880 to £1107, in addition to pension.

Further information may be obtained from the Assistant Director-General, The War Office (A.M.D.2), London, S.W.1.

ROYAL ARMY DENTAL CORPS

Registered dental surgeons of British nationality or citizens of the Irish Republic who are liable for service under the National Service Act may apply for short-service commissions for not less than 3 years on the active list, with a reserve liability up to 8 years from the date of their appointment. Those (both men and women) who are not liable for service may apply for short-service commissions for varying periods of between 2 and 8 years on the active list. An antedate of seniority counting towards increments of pay and time promotion may be granted for postgraduate civil professional experience; previous commissioned service in the Armed Forces is also taken into consideration. A tax-free gratuity is payable. Officers or dental surgeons (male) may be appointed to permanent commissions direct or at any time during the short-service or National-Service engagement. Until further

notice, those so appointed will be paid a special grant of £1250 (taxable) after one year's satisfactory service as dental officers. The period of their short-service commissions will reckon towards ultimate retired pay and service gratuity, but will not entitle them to short-service gratuities. Dental surgeons who are eligible to apply may obtain full particulars and application forms from the Under-Secretary of State, The War Office (A.M.D.6), London, S.W.1.

Royal Air Force Medical Branch

The Royal Air Force offers an attractive career to fully registered men and women medical practitioners who are British subjects or citizens of the Irish Republic. Normally, the upper age-limit for applicants is 33, but older applicants may be considered. Appointment is usually to short-service commissions for three, four, five, or six years in the first instance, each of which may be extended to complete a maximum period of eight years' service. Exceptionally, suitable candidates may be appointed to permanent commissions direct from civil life. Short-service officers may apply for permanent commissions at any time during their service.

Medical officers come into contact with flying and air evacuation of sick and wounded, as well as the clinical specialties and the treatment of Service families. There are, in addition, opportunities in aviation medicine, hygiene, and industrial medicine.

For regular officers, antedates of seniority may be admissible for recognised civil experience. These antedates reckon towards pay, seniority, and promotion. The normal rank on appointment is flying-officer, with promotion to flight-lieutenant after one year's reckonable service, and to squadron-leader after eight years' reckonable service. Officers recognised as R.A.F. specialists will be promoted to the rank of wing-commander after seven years' satisfactory service in the substantive rank of squadron-leader, to group-captain on completion of eight years' satisfactory service in the substantive rank of wing-commander, and to ranks above group-captain by selection. Non-specialist officers can expect promotion to wing-commander after about seven years' satisfactory service in the substantive rank of squadron-leader; promotion to the rank of group-captain and above being by selection.

Officers serving on permanent commissions may be allowed study-leave with full pay and allowances to take approved postgraduate courses, for which tuition fees on an approved scale may be granted. Officers having experience or aptitude in a specialty may be employed on specialist duties and subsequently earn recognition as senior trainee specialists with additional pay of 4*s*. per day and as Royal Air Force specialists with additional pay of 12*s*. per day. Non-specialist medical officers below the rank of group-captain will be awarded additional pay of 4*s*. per day on gaining a registrable diploma in public health, industrial health, or tropical medicine, provided that in each instance the prescribed period of study occupied an academic year.

Officers appointed to permanent commissions will receive a grant of £1500 (subject to income-tax) after one year's satisfactory service and they will be entitled to retired pay and other benefits after completion of service. Short-service officers will, on completion of their commissions, be paid a tax-free gratuity at the rate of £200 for each year of satisfactory service. Arrangements exist to preserve their superannuation rights under the National Health Service (Superannuation) Regulations, 1950.

Further information can be obtained from the Under-Secretary of State for Air, Air Ministry, M.A.1.p., 2/8, Richmond Terrace, Whitehall, London, S.W.1 (Trafalgar 8811, ext. 6674).

ROYAL AIR FORCE DENTAL BRANCH

Commissions are available in the Royal Air Force Dental Branch to candidates of either sex who possess a degree or licence in dental surgery of a British university or licensing board, and who are registered under the Dental Act in force in the United Kingdom. Dental officers in the Royal Air Force have plenty of scope for all the aspects of dentistry in a branch which trains its own technicians and maintains its own laboratories under senior dental officers. Dental officers serving on short-service or National-Service commissions may apply at any time for appointment to permanent commissions. The length of the period on a short-service commission and the period required in the reserve on its completion is the same as for medical officers. Similarly, dental surgeons may be granted permanent commissions if they can complete at least twenty years' service qualifying for retired pay. Previous commissioned service counts for antedate of seniority rank on appointment, and terms of promotion the same as for medical officers, while antedates for civil experience in a recognised professional appointment are given on the following basis, subject to a maximum antedate of seven years for such experience: first four years, in full; any later experience, in half. Candidates who hold specialist appointments may be allowed to have their civil experience assessed on a different basis, but within the same maximum of seven years. A tax-free gratuity, at the rate of £170 a year for each year of satisfactory active-list service, is payable to short-service officers on transfer to the reserve. Dental officers appointed to permanent commissions are encouraged to pursue their studies in postgraduate research and may be allowed up to seven months' study leave on full pay and allowances to take approved postgraduate courses. Until further notice, a grant of £1250, subject to income-tax, will be made after one year's satisfactory commissioned service in the dental branch, to officers appointed to permanent commissions. Short-service or permanent-commission officers who have the appropriate higher qualifications and the requisite experience may be recommended for specialist appointments. Further information may be had from the Under-Secretary of State, Air Ministry, M.A.6, 2/8, Richmond Terrace, Whitehall, S.W.1 (Trafalgar 8811, ext. 6669).

Health Services at Home

PUBLIC HEALTH

AMONG the divisions of the nation's health services, public health ranks next in size and importance to the general-practitioner and hospital services and it offers a satisfactory career to the young doctor keen to work for the welfare of the community as well as for the individual.

Under the National Health Service Act of 1947, councils of counties and county boroughs were designated "local health authorities" and had conferred upon them, and through them upon their medical officers of health, wide responsibilities for the provision of personal health services. These include a duty to provide clinics and other services for mothers and young children, domiciliary midwifery, home nursing, domestic help, health visiting, immunisation, vaccination, and ambulance services. Wide powers are also given to these authorities to prepare and administer schemes for the prevention of disease and for the care and aftercare of sick persons. Recently, new concepts have been developing in the mental-health services and there will be considerable expansion in local-health-authority responsibilities as the result of the recommendations in the report of the Royal Commission on the Law relating to Mental Illness and Mental Deficiency. In most counties and county boroughs the medical officer of health is principal school medical officer and is thus responsible for the preventive health services covering children of all ages. In some areas further coördination has been secured by placing the authority's social welfare services also under the medical officer of health.

In county boroughs, boroughs, and urban and rural districts, the medical officer of health is responsible for environmental hygiene. In contrast to the early days of public health when the medical officer of health was personally concerned with the execution of many sanitary duties, health departments are now organised to free him from much of the detailed work, which is performed by trained lay officers, or even transferred to the care of other departments—as in the case of water-supply and sewerage disposal. Naturally, the extent of this devolution of responsibility varies widely, and in rural areas problems of water-supply and sanitation are still a major concern of the medical officer of health. The supervision of housing conditions is also a responsibility of the health department. All this work remains under the general control of the medical officer of health, and he must supervise the purity of water-supplies even though their production is not his concern. Though less concerned

with detailed work, supervision must be far wider than that exercised by his predecessor of a hundred years ago.

Control of infection has always been one of the principal functions of the medical officer of health. Laboratory workers have made great advances in the identification of species and strains of bacteria and viruses and new techniques applied to epidemic control have given the medical officer of health an instrument of precision in much of his epidemiological work. The application of specific prophylactic measures against various acute infections is now an important function of all health departments. Drastic reduction, if not the complete extinction, of many important infectious diseases has become a feasible target for all health departments.

Recent developments have increased the opportunities for the young medical officer to obtain a comprehensive training in public health. In the larger towns there are now more posts of senior-medical-officer grade, and in counties, schemes of divisional administration have been evolved. The work of the medical officer of health to a number of county district authorities is often combined with an appointment as assistant or divisional county medical officer of health. The holder of such a post obtains a detailed knowledge of the community under his care, and, while retaining a high degree of individual responsibility, he suffers none of the disadvantages of rural isolation.

A sound clinical background is an essential qualification for the new entrant and a course leading to the diploma in public health should be taken at an early stage since this qualification is necessary for anyone seeking an appointment as a medical officer of health. For doctors engaged in clinical preventive medicine a diploma in child health, in obstetrics and gynæcology, or in psychological medicine is an advantage.

Individual progress in a public-health career depends largely, if not entirely, upon the doctor's personal qualities; for, as adviser to his authority, the reputation of the medical officer of health depends on the soundness of the advice he gives. Quite apart from his statutory functions, he has an important part to play in promoting the health education of the community, and in helping to secure full coördination between the branches of the health service in his area. He is assisted by the regular liaison meetings, which are held in most regions, between the hospital boards and the county and county borough medical officers of health. Most hospital boards rely on the medical officer of health to determine the urgency of the social grounds for admitting patients to hospital, especially in maternity cases and when considering the chronic sick. Some medical officers of health have been appointed as members of hospital medical advisory committees or of hospital management committees; and, through the National Health Service Act, a closer relationship with the general-practitioner services has now become possible.

INDUSTRIAL MEDICAL SERVICES

INDUSTRIAL or occupational medicine is gradually taking its proper place among the branches of medicine. Whatever may be the merits or demerits of a classical education, it is certain that the social stigma placed by the ancient Greeks on the mechanical arts and trades led to the neglect of the working man in ancient medical practice and of the occupational diseases by medical science. Even now the influence of the classics on this aspect of medicine has not been entirely dissipated, and it is a rare physician who goes fully into the details of his patient's occupation and tries to estimate its effect on his health. This is surprising because there is no study more fascinating than that of the physical and mental reaction of man to his environment. Industrial medicine has both preventive and curative aspects but it is generally regarded as a branch of preventive medicine, and of public health in its wider sense, or even of the loosely defined concept of social medicine.

In November, 1954, the Minister of Labour and National Service announced in the House of Commons that he had decided to take steps to stimulate the further development of industrial health services in work-places covered by the Factories Acts. He later set up a standing industrial health advisory committee to carry out a review to ascertain where industrial health services most needed to be extended. Two pilot surveys have been undertaken—one in Halifax and the other in Stoke-on-Trent—but as yet no results have been announced.

It is to be hoped that the deliberations of the industrial-health advisory committee will lead to the creation of more posts for doctors interested in occupational medicine. These posts fall into various categories, such as those in the Civil Service, the nationalised industries, research organisations, the universities, and factories. But, though the importance and opportunities of industrial medicine are increasingly recognised, it cannot yet be said that in salary or prospects the openings in this work are always as favourable as those in the National Health Service. For industrial posts within the Civil Service, the prospects have improved slightly as a result of the Royal Commission on the Civil Service, but even at present this service does not offer enough senior appointments to assure promotion to all who earn it. Moreover, as things are at present, the top posts in the medical Civil Service are often filled by doctors who previously held appointments outside the service, and this is a discouragement to those who are contemplating entry through the basic grade.

The appointments as medical officers to factories and other industrial organisations vary in attractiveness, both as regards opportunities and salaries. In some the conditions and prospects are good, and the British Medical Association has laid down a scale of minimum salaries.

The main Government department supervising the health of industrial workers is the Factory Department of the Ministry of Labour and National Service. This department, which up to 1940 worked under the Home Office, dates from 1833 and administers the Factories Acts (1937 and 1948) with regulations on accident and sickness prevention, hours of work, amenities, and canteens. The inspectorate numbers about 412, of whom 18 are doctors. Members of the department, whether lay or medical, take part in the activities directed towards the prevention of illness and maintaining the health of the factory population. The medical inspectors are stationed in London, Birmingham, Sheffield, Liverpool, Cardiff, Bristol, Manchester, Glasgow, Leeds, and Wolverhampton; and from these centres they are able to deal with factory health and conditions in any part of the country. Under them 1750 general practitioners give part-time service as appointed factory doctors (previously called examining surgeons), examining all young entrants into industry, and periodically all those engaged in specific dangerous processes. In addition there are about 400 doctors employed whole-time in factories or groups of factories, and about 3000 (may be more) in part-time work. An interesting development in recent years has been the setting-up of medical services for looking after workers on trading estates. Three such schemes, at Slough, Hillington, and Bridgend are well established and others are projected to serve the trading estates at some of the "new towns." One such service is now in operation at Harlow in Essex. It has been a common criticism of the industrial medical services that the workers at small factories are not catered for, and these group services might well form a model for a national service. It is well to bear in mind, however, that even in factories where there are no doctors a close watch on conditions is maintained by the factory department.

Apart from the factory department, other government departments deal with various aspects of the industrial medical services. For instance, the Post Office, which employs more workers than any other department, has had a medical service since 1855; and since it deals with engineering and manual workers in addition to office staffs, it is partly an industrial medical service. The Post Office medical staff is now directed by the chief medical adviser to the Treasury, who has in addition a staff of 15 doctors which deals with the health problems of the Civil Service. The Inspectorate of the Ministry of Fuel and Power has a medical section with a few full-time medical inspectors. The National Coal Board provides a comprehensive industrial medical service for the industry which now has a large staff of whole-time doctors. The Ministry of Supply Medical Service with 40 doctors, deals with the health of the workers in the Royal

ordnance factories, and in the research stations. The Ministry of Pensions and National Insurance has a medical staff both at headquarters and in the regions, which advises on compensation for industrial injuries as well as for other causes of ill health. The former silicosis and asbestosis board is now a part of the medical service of the Ministry. On the staff of the pneumoconiosis medical panels, as they are now called, are some 30 whole-time medical officers who deal with the diagnosis and certification for compensation of cases of silicosis, asbestosis, and some other forms of pneumoconiosis. They also carry out periodical medical examinations of workers engaged in some scheduled occupations in which cases of pneumoconiosis are likely to arise. The centres from which the panels work are Swansea, Cardiff, London, Manchester, Sheffield, Stoke-on-Trent, Bristol, and Edinburgh. Some of the newly nationalised industries have established medical services—for example, the London Transport Executive, a part of the British Transport Commission. The London Transport Executive employs a chief medical officer with 9 full-time doctors. The National Dock Labour Board also has a medical service consisting of 7 full-time medical officers and 1 part-time medical officer. Some, but not all, of the regional boards of the nationalised gas industry have appointed whole-time and part-time doctors to look after the health of the workers. A move is on foot to set up medical services in all regions, and several new appointments have been made recently.

In addition to investigations and research into industrial diseases conducted by medical inspectors of factories, mines medical officers, and works doctors, much fundamental research into environmental conditions has been carried out by the staff and various committees of the Medical Research Council. Clinical and field studies made under the ægis of the council's industrial pulmonary diseases committee include inquiry into the pneumoconiosis of coalminers and the byssinosis of cotton workers. The London Hospital department for research in industrial medicine was established in 1943, and a few years later, in conjunction with the Ministry of Fuel and Power, a bureau for research into the pneumoconiosis of South Wales coalminers was set up in Cardiff. Other units of the council dealing with industrial health include the toxicological research unit at Porton, the groups for research in industrial physiology and psychology in Manchester, Cambridge, and London, and the industrial medicine research unit at the Birmingham Accident Hospital. There is also a unit for research on climate and working efficiency at the department of human anatomy at Oxford, a social medical research unit at the London Hospital, and a statistical research unit at the London School of Hygiene and Tropical Medicine. Problems on the health aspects of atomic energy are being dealt with at Harwell. Research into industrial health matters is also being undertaken by the university departments mentioned below. The Institute of Social Medicine at Oxford, which works under a joint board, also undertakes investigations into various aspects of industrial health. University chairs devoted to industrial or occupational medicine have been set up at Manchester and Durham. The chair of social medicine at Birmingham includes industrial medicine within its terms of reference, and the University of Sheffield has appointed a professor of social and industrial medicine. Students are likely to hear more about these subjects in their undergraduate courses. Postgraduate courses are held in London, Birmingham, Sheffield, and Manchester, and occasionally at other centres. Diplomas in Industrial Health (D.I.H.) have been instituted by the Society of Apothecaries, the Conjoint Board of the Royal Colleges of Physicians and Surgeons, and the Faculty of Physicians and Surgeons of Glasgow. The Association of Industrial Medical Officers was formed some years ago by doctors interested in industrial health, and branches have been established in various parts of the country; the *British Journal of Industrial Medicine* is sponsored by this association in conjunction with the British Medical Association. The association has also since April, 1951, published a quarterly journal, called the *Transactions of the Association of Industrial Medical Officers*, which is devoted to the dissemination of information about the practical aspects of industrial medicine rather than to original research.

PRISONS AND BORSTAL INSTITUTIONS

THE medical service is a part of the general service class of the medical Civil Service. It is under the immediate control of the Director of Prison Medical Services at the Prison Commission. The service comprises principal medical officers, senior medical officers, medical officers, and part-time medical officers. Whole-time medical officers are appointed to the larger prisons and Borstals, and at the most important establishments there are principal or senior medical officers, assisted by one or more medical officers and psychologists. The senior medical officers also have advisory and other duties in connection with small groups of establishments. The medical officer is also required to pay attention to sanitation and the general hygiene of the prison and to keep a close watch on food and nutrition. The making of psychiatric assessments, the provision of medical and psychiatric reports, and the giving of evidence in court when called upon are important aspects of the work. Surgical and psychotherapeutic units are established at selected centres. Candidates must be fully qualified and registered and should possess a sound knowledge of medical and surgical practice; preference is given to those who, in addition, have had postgraduate experience in psychological medicine.

Salaries are in accordance with the general Civil Service scales:

Medical officer* £1740 × £75–£1965 × £100–£2265 × £95–£2350.
Senior medical officer £2700.
Principal medical officer £3000.

* Linked to age 35, minus £50 for each year below that age; and plus one increment for each year above that age but not exceeding age 40.

The appointments are pensionable. Unfurnished quarters, when available, are provided at a moderate rental. Appointments are made by the Civil Service Commission, 6, Burlington Gardens, London, W.1, to whom all inquiries should be addressed.

At the smaller prisons and Borstals no whole-time medical officers are employed; local practitioners are usually appointed as part-time officers. Further particulars of these appointments can be obtained from the Prison Commissioners, Horseferry House, Dean Ryle Street, London, S.W.1. Revised scales of salary for part-time medical officers have been agreed with the British Medical Association.

Services Abroad

HER MAJESTY'S OVERSEAS CIVIL SERVICE: MEDICAL BRANCH

THE medical departments of the governments of the territories overseas for which the Secretary of State for the Colonies is responsible offer a wide range of openings to the right type of doctor. There is a large field of medical opportunity in these territories and whatever political future they may have, there is no doubt that they will require the help and advice of British medical men for many years to come. The work of a medical officer overseas is many-sided and requires a doctor of all-round capabilities. There is an immense and fascinating field of clinical work, but the doctor must be prepared to occupy himself with a good deal of public health and social medicine. He must, of course, be ready to work with non-European colleagues and although the actual conditions of life and work vary greatly from territory to territory, life abroad has many pleasant features and often gives more scope for individual responsibility than life in Britain.

Vacancies occur in many parts of the world. The greatest number is in tropical Africa. Candidates must ordinarily be British subjects holding medical qualifications registrable in the United Kingdom, and should normally be under 45 years of age. In some territories permanent appointments are available. Candidates selected for permanent appointments become members of the medical branch of Her Majesty's Overseas Civil Service. Many future appointments are likely to be made on the basis of short-term contracts, usually renewable, and carrying a generous gratuity on termination. Doctors in the National Health Service may take temporary

appointments overseas up to six years without loss of pension rights.

In the first instance medical officers are usually appointed for general duties, which require a balanced outlook upon both preventive and curative medicine. Such duties often involve the charge of a district hospital and responsibility for the medical administration of a district. Although many officers are employed on clinical duties in the large hospitals, some posts are purely concerned with public-health work, and for these the possession of the D.P.H. is generally necessary.

There are many specialist appointments which, if permanent, are normally filled from within the service by officers possessing the necessary aptitude, experience, and qualifications, wherever they may be serving. For these appointments a high standard of professional attainment is required. Senior administrative appointments are almost invariably filled by the promotion of serving officers whose opportunities are not necessarily confined to the territories in which they are serving.

Officers possessing qualifications or experience in pathology can be considered for appointment to the laboratory establishments. Workers in the laboratories carry out pathological and biochemical examinations for clinical, forensic, and public-health purposes. In this branch a great deal of the research work which has led to important advances in the knowledge of tropical medicine and the solution of local health problems has been carried out.

There are a number of posts for women doctors, particularly for those with special experience in obstetrics, school health, child welfare, and nutrition, although their employment is not necessarily confined to these subjects.

Salaries vary considerably from territory to territory in accordance with local conditions. Some existing salary scales for medical officers are :

	£
Nigeria	
Federation, Eastern	1128–1950
Northern	1212–1950
Western	1086–1950
Sierra Leone	1098–1956
Gambia	1126–1950
Kenya, Uganda, Tanganyika	1284–2115
Aden	1212–1992
Hong-Kong	1200–2330
North Borneo, Sarawak	1428–2324
Fiji	F960–1850

Specialists and senior administrative officers receive superscale salaries ranging broadly from £2300 to £3075 and in many territories there are cost-of-living allowances and allowances for children's education. Passages are free and quarters are usually provided at a low rental. Leave is generous and officers pay income-tax at local rates, mostly much lower than those in the United Kingdom. Since 1946 the privilege of private practice has been withdrawn but in special circumstances it may be allowed. The precise regulations on this subject differ in each territory.

It is impossible here to give more than a brief outline of medical appointments in the territories overseas and candidates are advised to seek fuller information from the Director of Recruitment, Colonial Office, London, S.W.1.

FEDERATION OF RHODESIA AND NYASALAND

THE Federal government administers the health services of Southern Rhodesia, Northern Rhodesia, and Nyasaland. The rates of pay for full-time officers are :

	£
Secretary for Health (1)	3250
Directors of medical services (3)	2850
Deputy directors of medical services (3)	2650
Directors, public health laboratories (2)	2550
Ophthalmologists (3)	2550
Medical superintendents (7)	2550
Senior medical officers (8)	2550
Pathologists (2)	2550
Radiologists (4)	2550
Specialists (surgery, medicine, psychiatry, leprology, veneral disease, and tuberculosis) (14)	2550
Provincial medical officers of health (4)	2550
Medical superintendents (9)	2250
Radiologists (3)	2250
Pathologists (3)	2250
Medical superintendents (5)	1925–2050
Medical officers of health (8)	1700–2050
Government medical officers (138)	1250–1850
Schools medical officers (2)	1250–1850

Government medical officers are permitted private general practice in the rural areas; the value of this varies considerably and may reach £1000 a year, but where the net receipts fall below £200 a year a payment is made to bring the total receipts to that figure. In other areas no private practice is allowed and an allowance of £200 a year is paid in lieu. Medical superintendents and specialist officers are allowed consultant practice, the cash value of which is not great. The duties of government medical officers include the supervision of general and special hospitals and African clinics and dispensaries, medico-legal work, and preventive medicine. They also include attendance on those officers of the Federal and Territorial governments and others who are entitled to free medical attention, such as boarders in government schools and prisoners. These duties thus provide a wide field for clinical work and for the investigation and treatment of African diseases.

Vacancies are normally advertised, but where possible the more senior posts are filled by promotion within the service. Further details may be obtained from the Secretary to the High Commissioner for Rhodesia and Nyasaland, 429, Strand, London, W.C.2.

MEDICAL MISSIONARY SERVICE

CHRISTIAN medical men and women who wish to offer their services where the need is greatest will find opportunities in medical missionary work. There are university medical schools, central and rural hospitals, and many opportunities for public-health work and research. Christian missions in India and Pakistan have helped to maintain high ethical and professional standards, and have specialised in nursing and medical education. In Africa they have pioneered rural health services and the training of nurses, midwives, and subordinate staff. In many parts of the world the work is becoming integrated with the government services though still maintaining its identity. For undergraduates pledged to this service there are hostels in London and Edinburgh. After qualification, a period of eighteen months or two years in resident appointments is advised for all and also special diplomas or higher degrees for some. Under certain circumstances exemption is given from national service. Special missionary training is required by some societies. Service is for terms of from eighteen months to five years, according to the country and climate; there are opportunities for postgraduate study during furloughs. Offers for life service are preferred, but short terms are considered. Financial rewards are not high but vary with need. Passages are free and quarters provided. For long-term service many societies have pension provision. Help is given with children's educational costs. Applications from students or qualified men and women should be made either to the secretary of one of the denominational or interdenominational missionary societies, or through the local branch of the Student Christian Movement or the Intervarsity Fellowship, or to the Chairman, Medical Advisory Board of the Conference of British Missionary Societies, Edinburgh House, 2, Eaton Gate, London, S.W.1.

THE MEDICAL RESEARCH COUNCIL

THE Medical Research Council, originally established in 1913 as the Medical Research Committee, is appointed to administer the funds provided annually by Parliament for the promotion of research in medical science. The council is under the general direction of a committee of Privy Council, consisting of the Lord President as chairman and the Ministers in charge of the principal departments concerned with questions of public health at home and overseas. The Lord President is the Minister responsible to Parliament for the council's work. The members of the council, appointed by the committee of Privy Council normally for a period of four years, are twelve in number. Nine of these are chosen for their scientific qualifications; of the remaining three, one must be a member of the House of Lords and one a member of the House of Commons.

Although its funds are largely provided out of the Parliamentary grant-in-aid, the council is not a Government department and its staff are not Civil Servants;

its constitution gives it full liberty to pursue an independent policy, and enables it to foster effective relations between science and the State, unrestricted by territorial or departmental limitations of function. The council maintains close touch with the Government departments having responsibilities for public health, collaborates freely with its sister research organisations, the Department of Scientific and Industrial Research and the Agricultural Research Council, and has direct relations with similar organisations abroad.

The council supports research in two main ways: by employing its own scientific staff and by a scheme of grants and training awards which it makes available to workers elsewhere for specific purposes. The council's annual report, published by H.M. Stationery Office, gives an account of the work in progress under its auspices. (See below for details of other publications by the council.)

The council's scientific staff, with technical and other assistants, work in one major institute—the National Institute for Medical Research, Mill Hill, London, N.W.7—and in over sixty research units or groups of varying size, or in some cases as individually attached workers, in universities and hospitals mainly in the United Kingdom but also in certain colonial territories. The council also provides the major portion of the finance of the Institute of Cancer Research in the Royal Marsden Hospital, London, S.W.3.

The work of the National Institute for Medical Research, which is the largest of its kind in the Commonwealth, is designed to cover as wide a field as possible in basic non-clinical medical research; it has separate divisions of biochemistry, organic chemistry, chemotherapy, bacterial physiology, physiology and pharmacology, human physiology, immunology, experimental biology, bacteriology and virus research, biophysics and optics, biological standards, and engineering. The council's research units and groups are housed, by mutual agreement, mainly within unversity or hospital departments. Their interests cover the whole range of medical research from fundamental laboratory subjects, such as biophysics and toxicology, to various aspects of clinical research and social and tropical medicine.

The close association of most of the council's establishments with universities and hospitals is valuable from many points of view, and especially in the opportunities it provides not only for collaboration in joint schemes of research but also for informal day-to-day discussions on scientific problems of common interest. Members of units and of the external staff accommodated in university departments are often given honorary university appointments and participate to a limited extent in teaching, while in appropriate cases members of clinical units hold honorary hospital appointments. In accordance with the recommendations, in the *Report on Clinical Research in Relation to the National Health Service*,[1] arrangements have been made by the council, in consultation with the Health Departments and with the advice of the Clinical Research Board, for the further development of research in this field.

The interests of the council and of the universities are necessarily closely aligned in the research field but they do not merely duplicate each other. The work of the council is complementary to that of the universities and under the terms of its constitution it is particularly well placed to explore new fields as they come to light and to develop new subjects rapidly on a large scale.

The council's aim is to provide the opportunity for careers equivalent to those offered in the universities to men and women of equal ability and experience. Its salary scales are based on this principle and approximate closely to the various grades of university appointments, the director of a council unit normally being considered to be of professorial status. For the most part salaries are not fixed in relation to particular posts, but rather with reference to the ability and responsibilities of the individual: promotion to a higher grade may accordingly be made without change of post. The council's staff number about 1900, of whom some 550 are scientific staff and about one-third of these medically qualified.

1. H.M. Stationery Office, 1953.

Appointments to the scientific staff are made on the recommendations of the director of the establishment concerned, normally for three or five years in the first instance. Later, when an adequate degree of seniority has been attained, the council may express its intention of continuing employment until the normal retiring age of 60, with the possibility of extension to 65. Superannuation provision—normally under the Federated Superannuation System for Universities—is made for most appointments.

PUBLIC HEALTH LABORATORY SERVICE

On behalf of the Ministry of Health, the council have administered the Public Health Laboratory Service since 1939 when it was originally set up as an emergency service. There are over 60 separate laboratories in England and Wales. In addition to their routine duties, members of the staff of the service, whose salary scales are normally equated with those of the National Health Service, undertake research in bacteriology and epidemiology. The service also maintains a number of special laboratories which act as reference centres for particular infections, and are engaged largely in research.

The following booklets covering various aspects of the council's activities are available on request to the Secretary, Medical Research Council, 38, Old Queen Street, Westminster, London, S.W.1: Constitution and Functions; Careers in Medical Research; Research Grants.

MEDICAL PRACTICES ADVISORY BUREAU

WHEN the National Health Service Act came into force, the traditional procedure for entry into general practice was considerably modified—particularly by the abolition of the sale and purchase of goodwill. It soon became apparent that there would be a need for some central source of information which could give advice to practitioners seeking openings, to those desiring to transfer from one area to another, and to those seeking to set up in single-handed practice. It was felt that advisory functions of this kind should be undertaken by a body which was not linked directly or indirectly with central or local government but whose status and resources were such as would enable it to establish and maintain effective liaison with executive councils, local medical committees, and the Medical Practices Committee, and at the same time to command the confidence of the profession. To meet this need the Medical Practices Advisory Bureau was established at the end of 1948 as a department of the British Medical Association, under the direction of a member of the medical staff of the association.

The functions of the bureau are twofold: firstly, to maintain an information service about openings in the various fields of medical practice and to introduce partners, assistants, and locums; and, secondly, to advise on individual and personal problems associated with entry into and the conduct of medical practice. A great deal of advice is sought on the various forms of contracts and agreements between practitioners. Although it is not the function of the bureau to give legal advice, there are many questions concerning partnerships and assistantships where the advice of a doctor with experience is needed, as well as that of a lawyer. All doctors are welcome to seek the advice of the Bureau, at B.M.A. House, Tavistock Square, London, W.C.1, or any of its branch offices. Those who are not members of the B.M.A. are required to pay nominal charges for the agency services.

THE BRITISH MEDICAL STUDENTS' ASSOCIATION

THIS association was founded in 1942 and its membership now includes over 90% of the medical students in the country. It is purely a professional organisation, providing a means of communication between medical students in the different universities and hospitals and also between British students and those in other countries. It presents the medical students' viewpoint to the medical profession, to Government departments, and to other interested bodies. The organisation of the

association is based on an annual general meeting, at which an executive committee is elected, and on four regional councils. Both clinical and preclinical conferences and "schools" are arranged from time to time and these are appreciated not only for their academic interest but also for the opportunities which they provide for meeting fellow students from other medical schools. Local activities of the constituent organisations of the association include lectures, visits, discussions, and the showing of films from the B.M.A. and other film libraries. Amongst its publications are the *British Medical Students' Journal*, which appears once a term, the B.M.S.A. Diary, and an annual list of vacation appointments for those members requiring work in hospitals during vacations.

The B.M.S.A. is keenly interested in the grants problems of its members and cases of hardship are investigated and if necessary taken up with the appropriate authorities.

The association is represented on the medical students and newly qualified practitioners subcommittee of the B.M.A., the B.M.A. film committee, and the undergraduate education committee of the College of General Practitioners. It also has liaison with the council of the College of General Practitioners. It maintains its close interest in the British Student Tuberculosis Foundation, of which it is a sponsoring body, and is a founder member of the United Kingdom committee of the World Health Organisation.

In the field of sickness and other insurance, the association has made arrangements with an insurance agency, set up by the medical profession for its own guidance, for the development of a special section to advise medical students.

The B.M.S.A. is a founder member of the International Federation of Medical Student Associations (I.F.M.S.A.), whose membership now embraces the associations of 18 nations. The I.F.M.S.A. continues to develop successfully and is recognised by the World Medical Association and UNESCO. Under the auspices of I.F.M.S.A. the annual Student's International Clinical Conference has been held this year in Germany, while other courses both clinical and preclinical have been held in Denmark and Sweden. Opportunities also exist for individual clerkships in hospitals abroad, and B.M.S.A., through the offices of a student international secretary, does much to assist British students to take advantage of these and other opportunities to travel and see something of medicine in other countries. Similarly, the B.M.S.A. makes arrangements for many foreign students to visit hospitals in this country and the number of applications increases yearly but unfortunately the number of places available does not. To encourage and assist deserving British students to attend courses and hospitals abroad the B.M.S.A. established three years ago a student travel fund. This year the administrators of the Fund awarded nineteen scholarships to the total value of £150. It is hoped to improve further on this figure in future years. The B.M.S.A. is greatly indebted to the generous donors without whose gifts the international activities of the Association would not be possible.

The B.M.S.A. is fortunate to have as its honorary president this year, Prof. J. H. Biggart, professor of pathology at the Queen's University of Belfast.

The principal activity of the Association during the current year has been the preparation of a report on the pre-clinical curriculum. Last year a medical education subcommittee presented to the annual general meeting a report, with recommendations, on entry to the medical course, and the first year of medicine, and this was accepted by the meeting. This year the subcommittee will present its report and recommendations on the preclinical curriculum together with proposals for the further review of medical education. At the present time medical education is being reviewed by many professional bodies. It is believed that this is the first time that a medical students' association has presented a report of this nature, which will, it is hoped, be of use to medical educationalists. The reports will be published soon and be made widely available.

The annual general meeting this year will be held in Cardiff on Nov. 15–17, and it is hoped that all member schools will send full delegations. Observers from the non-member schools will be very welcome.

The address of the association is B.M.A. House, Tavistock Square, London, W.C.1.

COMMONWEALTH MEDICAL ADVISORY BUREAU

THE British Medical Association set up the Commonwealth Medical Advisory Bureau with a view to making the stay of overseas medical visitors to this country as profitable and pleasant as possible, by welcoming them and providing a personal advisory service. The bureau, which is at B.M.A. House, Tavistock Square, London, W.C.1, caters for Dominion and Colonial medical men and women who are staying in this country for postgraduate education or other purposes. Information is obtainable about postgraduate education and courses of study for higher qualifications; and inquirers can be put in touch with the organisations and authorities providing postgraduate education. The visitor who wishes to see something of the latest medical work in his own specialty can be put in touch with the appropriate experts.

A register of suitable hotels and lodgings is maintained by the bureau, and every effort is made to help visitors to solve the problem of finding somewhere to live. By social functions and in other ways doctors from the Dominions and Colonies are enabled to meet each other and prominent members of the profession in this country. General information about travel, sports facilities, exhibitions, theatres, &c., may also be had. The bureau can be of greatest service to the visitor if he writes as long as possible in advance of arrival, giving information on the following lines: projected date of arrival, mode of travel, whether accompanied by wife, period of stay, objects of the visit, and in what ways assistance is desired. On arrival a letter of introduction from the local hon. secretary of the visitors' medical association, although not essential, would be welcome. The medical director of the bureau is Brigadier H. A. Sandiford, to whom all communications should be addressed.

INTERNATIONAL MEDICAL ADVISORY BUREAU

To further coöperation with fellow member associations of the World Medical Association, the British Medical Association has set up the International Medical Advisory Bureau to provide a personal advisory service to doctors visiting the United Kingdom from countries outside the British Commonwealth. The bureau, which is at B.M.A. House, Tavistock Square, London, W.C.1, offers information on postgraduate education facilities, while visits to hospitals and clinics can be arranged and help given in finding accommodation. General information on travel, car hire, theatres, and exhibitions is also available. The medical director is Brigadier H. A. Sandiford, to whom all communications should be addressed.

THE MEDICAL WOMEN'S FEDERATION

ALL medical women on the British Medical Register are eligible as members of the Medical Women's Federation, which has active local associations all over the country and in Northern Ireland, as well as a large London association and an overseas association linking up members all over the world. The federation is non-political. It provides medical and social meetings for its members and publishes a quarterly journal reviewing subjects of special interest to women doctors. These naturally cover a wide tract of social medicine, including maternity and child welfare, women in industry, the care of children and of difficult and delinquent children, the management of nursery schools and day-nurseries, women in prisons, children in approved schools and remand homes, the illegitimate child, and many related subjects. Advances in obstetrics and gynæcology, and psychological studies of women and children are naturally of special interest to women doctors; recent work in these branches of medicine is reviewed in the journal. From time to time the federation undertakes social studies and publishes the results. It is also able to protect the interests of its members by presenting arguments in any cases where there has been discrimination against women doctors. The federation's headquarters are at Tavistock House North, Tavistock Square, London, W.C.1.

In England Now

A Running Commentary by Peripatetic Correspondents

LIFEMANSHIP, the whole Potter saga, is certainly well known to the medical student of today. I hope it is equally familiar to his examiners. For I have just finished my quarterly stint at Queen Square on the "wrong" side of the green-baized table. And I have been much entertained by the ties of the more practised candidates. The conversation goes something like this: "So you found sugar in that specimen of urine, did you?"; "Yes, sir; so of course I thought of diabetes"—this for the sixth time that morning. My mind begins to slip a bit. It is clear to me that the candidate, a muscular bronzed type with well-developed thenar muscles which he keeps nervously contracting, obviously wishing he had a jib-sheet in his hands, knows for the moment, anyhow, all about anything I know about diabetes. The room is hot; I am probably a bit hypoglycæmic; I slip further and find myself saying, as I am sure he meant me to find myself saying, "Is that a sailing-club tie?" Of course it is: it is a dark-blue tie sprinkled with small colourful burgees. "Yes, sir. It's the St. Columba's Deep-sea Cruising Club tie." "So you take a boat out of coastal waters, do you?" I find myself saying, though I have really had not the slightest interest in ocean cruising for the past 25 years. It is just that my interest in diabetes mellitus has reached its nadir.

A green tie with crossed skates, or a dark-red tie with hockey sticks, can have the same effect on me. I am committed temporarily—and gratefully—to a conversation about something which interests the candidate profoundly and which has nothing whatever to do with medicine. Or is that so? This is a qualifying examination—and to hear the candidate telling me about how he took his 5-tonner inside Ushant may give me a better idea of how he would handle a patient in a sticky situation than would his recitation of what the registrar taught him in the revision course last week about treating a patient in diabetic coma.

My examining partner seems to be more interested in the heraldic ties and this, I must say, I deplore. It seems to me to get us nowhere. "Is that a pelican on your tie?" he asks. "Yes, sir," says the expert in tiemanship, "Corpus Christi, sir." "I know," says my partner, "Were you up when Jenkins was the senior tutor?" "No, sir; he died in college the term before I went up." A clever gambit this, for it induces my partner to give a clinical lecture on the pathology of Jenkins's cerebro-vascular degeneration, which, it seems, he superintended for some years.

But tiemen should not wear a current hospital tie, unless they are prepared to stand up to strictly topical bowling—"U.C.H. tie, I see. Well, tell me, who was Rothera?" "St. Thomas's. Tell me about Clutton and his joints." "A Guy's tie, is it. Well—what do you know about Bright, Addison . . .?"

* * *

So now, gentle student, you have decided to read the light relief from all that advice about where to go and what to do. But you have not learned the half of it yet, my boy. If you want to be the smooth consultant with shiny car and all the trimmings, you must plan now to Get On. Remember that you must get into the right jobs and gather the right letters at the right times. Then your chief will get you that job: his brandy and cigars will do more than your own white collar and hair-cut. Comes the consultantship, with 30 or more up for it. They have all written papers, had lots of experience, harvested the proper diplomas, and hold forthright and acceptable opinions about private practice (desirability of), psychosomatic medicine, and the Minister of Health. They all glow with the same glow. So what decides? "That chap Smith . . . a clever fellow by all accounts. Sometimes, a bit too clever, don't you think? Young Brown, now . . . he is one of Tom Sniffle's boys. I know Tom. He wouldn't sell us a dud . . ."

As soon as you can, find your Sniffle and get going. Keep your face in front of him on rounds, let him rag you gently in outpatients. Check up on his pet subjects, and then at a quiet moment in the pub give him another drink and "I saw a case of spondulips today, Sir. At least I think it was. Would the serum whatsit distinguish it . . ." Then sit back while Sniffle tells you about all his cases of spondulips, and goes through his theory of causation, to the time that old Squeak missed an obvious case.

If you decide to go academic, the game is much the same. Just shift emphasis to being very scientific about things. Learn to criticise others, but don't be too caustic about the Sniffle group itself. When you can spot the research band-waggon, jump on it, and ride along in the crowd, talking down the passers-by. Keep close to the drivers, argue with them but don't worst them in public.

Either way, it's useful to have something you can be known for and be expected to talk about. Find your little topic and flog it, inside out and upside down. Anything with a fashionable sound to it will do—something like "the serotonin content of big-toe-nails in 200 unselected cases, and its variations in the shod and the unshod." This will get you in as a serotonin expert, a toe-nail expert, with a message for dermatologists, pharmacologists, physiologists, surgeons (remember crush injuries of toes), industrial M.O.s, physicians, police surgeons, &c., &c. You should easily produce the two papers a year thereon; and remember to speak frequently in any discussion involving serotonin and/or toe-nails.

Of course, if you can marry Sniffle's daughter, much of this may be redundant.

* * *

The obituary of a distinguished pathologist reminded me of my oral examination when he was external examiner. The old man was very deaf and used an elaborate hearing-aid which had a battery contained in a box like a small wireless set. It was rumoured that, when losing interest in a conversation, he would switch off his machine in order to save the battery.

During the examination I was becoming aware that I was not doing well. The professor then pushed towards me a bottle containing an ulcerated bowel and, while deciding whether to put my money on typhoid or tuberculosis, I was horrified to see his hand stretch towards the electric box which had been laid on the table. In a moment there was a loud click followed by a terrible silence. Fearfully, I looked up; the external examiner was gazing through the window in serene appreciation of the Pentland Hills.

But I passed—three months later.

* * *

Dr. Magnus Pyke finds a lot of unconscious humour in science. From his new book,* we learn that highly qualified colloid chemists are devoting their talents and the fruits of long training to prevent the pulp in orange squash from settling to the bottom of the bottle. And we are reminded of our old friend the Dalmatian coach hound, the one and only mammal (other than man and the higher apes) which excretes uric acid instead of allantoin: most curiously, in a kennel in the United States, it was found that only pure-bred Dalmatians could be trained to run under the back axles of buggies, and the ability to learn this was related to the anomaly of excreting uric acid instead of allantoin.

Discussing the value of insects in our diet, Dr. Pyke tells us that in the 8th century B.C. King Asurbanipal, who lived in a palace near Nineveh, served his guests with locusts arranged on sticks, and there is apparently good evidence that the manna which fed the Children of Israel was supplied by aphids. For vegetarians who do not care for a diet of insects, the possibility of algæ as a source of food seems worth considering and Dr. Pyke recommends the cultivation of algæ as a method of producing food in the artificial satellites of the future.

It is comforting to learn that the theory that the hippopotamus is the only animal which does not have cholesterol in its bile is entirely in error and is due to a misphrased sentence in the first textbook on the subject, setting off a rumour which was passed from book to book. One further curiosity from pharmacology might be added to Dr. Pyke's list: it is reported that an inhibitor to the toxin of the nettle has recently been extracted—from dock-leaves.

*We refer to Dr. Pyke's book *Nothing Like Science* in an annotation on p. 415.—ED. L.

Notes and News

STANDARDS FOR COSMETICS

IT is ninety years since the first issue of the *British Pharmacopœia* in which minimum standards of purity for certain drugs were officially formulated, and these standards are now acknowledged in many parts of the world. Cosmetics and toilet preparations, even when they contain chemicals for which there is an official *B.P.* preparation, remain outside the scope of the Drug Acts and regulations. Although the larger manufacturers of cosmetics, some of whom are also manufacturing druggists, have prided themselves on the high standards of purity of their preparations, some smaller firms have not always been so careful.

The Toilet Preparations Federation, the governing body for the industry in this country, acknowledging its responsibility to maintain the highest standards, formed a study group in 1953 to establish chemical, physical, and purity specifications and data for the raw materials used in the trade. In January, 1957, it published a loose-leaf handbook [1] in which the first eighteen standards known as T.P.F. standards are detailed. A foreword states that more standards will be added from time to time and those already recorded will be subject to constant review. Among the substances included are liquid paraffin, glycerin, paraffin wax, precipitated chalk, titanium dioxide, propylene glycol, and talc. Standards relate to colour, odour, taste, solubility, moisture, screen test, impurities, and other factors. Where *B.P.* or other standards exist, these are quoted, and in their absence reference is made to T.P.F. methods in the second half of the specifications.

There are some 200 member companies of the Toilet Preparations Federation who have agreed only to buy the 18 materials listed to the Federation's specification. While this is an undoubted and welcome advance, the success of the standards scheme will depend on the publicity which the Federation are able to give it. Possibly member companies might use some symbol on the containers of their preparations which would tell the buyer that their products conform to the T.P.F. standards.

Although there is little recent evidence that impure chemicals in cosmetics have proved harmful, there are still many examples of sensitivity to certain ingredients used in cosmetics. It would be a great help to the dermatologist in tracing the offending sensitising chemical if the Federation's member companies would jointly agree to disclose on the container the nature of all active ingredients, as is the requirement for all proprietary drugs, even though the individual quantities of these were omitted.

INFORMATION ON PSYCHOPHARMACOLOGY

A CLEARING-HOUSE of information on psychopharmacology is being established by the psychopharmacology service centre of the National Institute of Mental Health in the U.S.A. The centre plans to provide bibliographies and references and to prepare critical and analytic reviews of special topics. Workers in this field are invited to provide three copies of any papers that deal with their work—whether reprints, pre-publication manuscripts, progress reports, informal mimeographed reports, papers read at meetings, or abstracts. Letters outlining work in progress would also be welcome. Any restrictions that authors place on the centre's use of their papers will be observed. Communications should be addressed to the technical information unit, psychopharmacology service centre, National Institute of Mental Health, 8719, Colesville Road, Silver Spring, Maryland, U.S.A.

RESIDENT POSTS IN TASMANIA

THE Devon Hospital and Burnie Hospital on the north-west coast of Tasmania welcome British graduates to their five posts of resident medical officer. The duties cover all branches of medicine, surgery, and obstetrics; and the hospitals are visited by specialists. The Director-General of Health Services, Tasmania, suggests that the posts are especially suitable for those intending to emigrate to Australia, who can get assisted passages; others will be given a grant of £100 towards the cost of their passage by the Health Department, at the end of their year of service. Further information can be had from the Director-General of Health Services, Davey Street, Hobart, Tasmania.

1. Obtainable, price 42s., from the secretary of the Toilet Preparations Federation, Sackville House, 40, Piccadilly, London, W.1.

POLIOMYELITIS

UNCORRECTED poliomyelitis notifications in the week ending Aug. 17 were as follows (previous week in parentheses): paralytic 176 (183), non-paralytic 191 (145); total 367 (328).

Society of Apothecaries of London

Dr. Reginald Fisher has been elected master, with Dr. W. S. C. Copeman and Dr. R. R. Trail as wardens.

The following diplomas have been granted:

L.M.S.S.A.—G. R. Hatch, R. W. Salmon, E. A. Robinson, A. D. H. Pooler, E. D. Keen, V. C. C. V. Dewhurst, D. H. Bailey, R. E. Tattersall, M. Roberts, V. A. Economides, A. J. Dyer, D. A. Logan, F. W. Yates, M. Parkes, B. L. Copley, T. R. Robinson, H. Sabry.

M.M.S.A.—P. V. Briffa, R. D. Haigh, M. A. H. Rayman, G. D. Rees.

D.I.H.—T. J. Burke, G. S. Dhaliwal, G. D. Forwell, J. Harkness, W. R. Lee, E. R. Steyn, G. Thomas.

Nutrition Society

The society is holding a symposium at the Royal Free Hospital School of Medicine, London, W.C.1, on Saturday, Oct. 12, on the Nutritive Value of Proteins. Further particulars may be obtained from the hon. programmes secretary, Miss D. F. Hollingsworth, c/o Ministry of Agriculture, Fisheries and Food, Great Westminster House, Horseferry Road, London, S.W.1.

The Scottish group of the society is holding a symposium on the Nutrition of the Very Young on Saturday, Sept. 21, in Dundee. Those interested, who are not already members, are invited to write to Dr. J. Davidson, Rowett Research Institute, Bucksburn, Aberdeenshire.

London Medical Exhibition

This exhibition, organised by the British & Colonial Druggist Ltd. (194, Bishopsgate, London, E.C.2), will be held from Nov. 18 to 22 at the Royal Horticultural Hall, Westminster.

CORRIGENDUM: *Coronary-artery Disease.*—In an annotation of June 15 (p. 1231) we erroneously stated that a W.H.O. study group regarded the stress, strain, and mental tension of modern life as important in the genesis of ischæmic heart-disease. In fact the study group found that the belief that psychological factors play some part "appears to have as yet no scientific basis."

Appointments

ANDERSON, C. J. B., M.B. Aberd., F.R.C.S.E.: consultant surgeon, Arbroath Infirmary.

AWON, M. P., M.B. N.U.I.: registrar in obstetrics and gynæcology, Peterborough group of hospitals.

CASSIE, GEORGE, M.B. Aberd., D.P.H.: assistant M.O. and school M.O., Lanark.

HARDIE, R. S., M.B. Edin., D.P.H.: M.O.H., Argyll.

HARE, E. H., M.D. Camb., D.P.M.: consultant physician, Bethlem Royal Hospital and the Maudsley Hospital, London.

HARPER, G. L., M.R.C.S., D.O.: assistant ophthalmologist (S.H.M.O.), Caernarvon and Anglesey and Clwyd and Deeside H.M.C. areas.

HAWES, G. C. B., M.B. Lond.: assistant M.O.H., Warwickshire.

KANAGASABAY, S., M.B. Ceylon: orthopædic registrar, Peterborough group of hospitals.

KEATES, P. G., M.D. Lond., M.R.C.P., D.M.R.D.: consultant radiologist, United Leeds Hospitals and Leeds Regional Hospital Board.

KIRKLAND, A. L., M.B. Belf., D.OBST., D.P.H.: assistant M.O.H., Warwickshire.

MCCULLOUGH, ISABEL M., L.R.C.P.I., D.C.H., D.OBST.: senior M.O., Derbyshire.

MCEWAN, CHRISTINA C., M.B. Glasg., D.P.H.: assistant M.O. and school M.O., Lanark.

MACKINNON, A. G., M.B. Lpool, F.F.A. R.C.S.: consultant anæsthetist, United Liverpool Hospitals and North Liverpool area hospitals.

MACLENNAN, R. D. G., L.R.C.P.E., D.P.H.: assistant M.O. and school M.O., Lanark.

MACTAGGART, D. K., M.B. Aberd., D.P.H.: M.O.H., Torquay.

OLIVER, F. W., M.B. Manc., F.F.A. R.C.S.: part-time consultant anæsthetist, Halifax.

RANKIN, N. E., M.B. Lond., D.PATH.: assistant pathologist (S.H.M.O.), department of pathology, Royal Marsden Hospital, London.

REY, J. H. M.D. Lond.: part-time consultant physician, Bethlem Royal Hospital and the Maudsley Hospital, London.

TURK, D. C., B.M. Oxfd, M.R.C.P.: lecturer in bacteriology, department of pathology, University College of the West Indies, Jamaica.

WARD, W. C., M.B., D.P.H.: M.O.H., Gainsborough and Isle of Axholme, Lincolnshire.

WATSON, D. C., M.C., M.D. Lpool, M.R.C.P.: consultant physician-superintendent, Sefton General Hospital.

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Anaesthesia, 1957, **12**, *174.*

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see *Lancet, 1957, i, 128.*

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see *Lancet, 1957, i, 213.*

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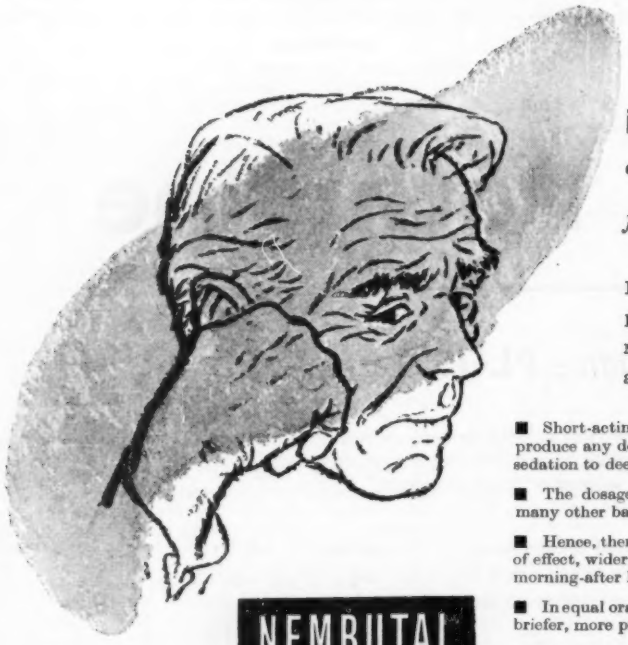

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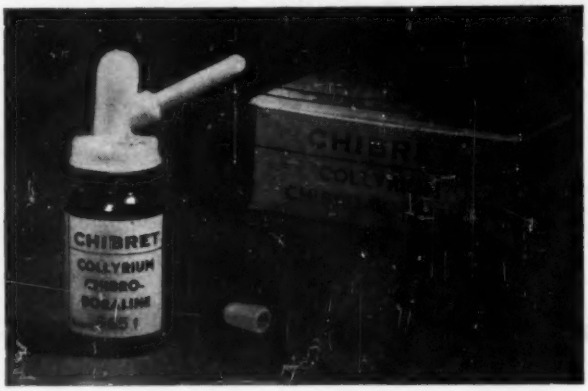

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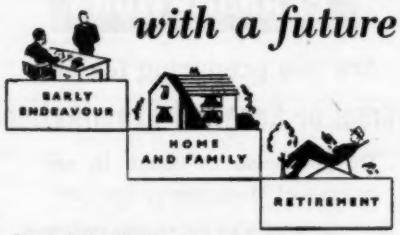

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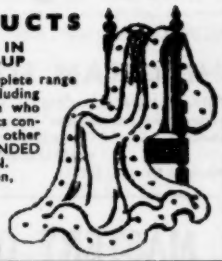

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30th September–18th October, 1957. 10 Clinical Conferences and 24 Surgery Lectures.
8th–25th April, 1958. 10 Clinical Conferences and 24 Surgery Lectures.

Fees : Full-time course (2 months) £31 10s.
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CONJOINT EXAMINATIONS

The Diplomas of L.R.C.P., M.R.C.S., are granted jointly with the Royal College of Physicians, as well as Diplomas in 12 specialties.

SCHOLARSHIPS AND PRIZES

The College grants many Research Scholarships and Prizes and in certain cases makes grants in aid of surgical research, the work being carried out either in the College or elsewhere. Research facilities are available in Anatomy, Physiology, Pathology and Pharmacology.

NUFFIELD COLLEGE OF SURGICAL SCIENCES

The Nuffield College of Surgical Sciences, the residential part of which adjoins the main building of the Royal College of Surgeons comprises some 80 bedrooms, lounges, squash court and billiard room and is available for postgraduate students of the College and visiting doctors.

Full particulars may be obtained on application to—

Mr. W. F. DAVIS, DEPUTY SECRETARY,
ROYAL COLLEGE OF SURGEONS, LINCOLN'S INN FIELDS, LONDON, W.C.2
(Telephone : HOLborn 3474)

THE ROYAL COLLEGE OF SURGEONS IN IRELAND

To which are attached by Charter THE SCHOOLS OF SURGERY

All students take the pre-medical course and then do five years medical course before completing the final examinations.

A composition fee of thirty-three pounds a term covers tuition, hospital fees, examination fees and the Students' Union.

There is a very active Students' Union with excellent playing fields about three miles from the schools.

A limited number of dental students is accepted.

Courses for the Primary Fellowship are held twice a year.

For information apply to the Registrar, 123, St. Stephen's Green, Dublin, Ireland.

UNIVERSITY COLLEGE LONDON

FACULTY OF MEDICAL SCIENCES

(University of London)

Gower Street, London, W.C.1

Dean of the Faculty : Professor F. R. WINTON, M.A., M.D., D.Sc.

The Faculty of Medical Sciences at University College London offers exceptional opportunities to medical and dental students. The staff, including teachers and research workers, is the largest in London, and for those with wide interests there is close contact with students in other Faculties.

At present about 60 medical students are accepted each October for direct entry into the 2nd M.B. course, and about 35 dental students for the 2nd B.D.S. course.

On completing the Preclinical course most students attend University College Hospital Medical School or the National Dental Hospital for their clinical studies.

There are two Entrance Scholarships for the Preclinical course, and for those students who desire to take a B.Sc. (Special) Degree in Anatomy or Physiology following the 2nd M.B. Examination there are twelve Scholarships tenable for one year.

The prospectus of the Faculty and application forms may be obtained from the Secretary, University College London, Gower Street, W.C.1.

THE SOCIETY OF CHIROPODISTS

8, WIMPOLE STREET, LONDON, W.1

The Society is a member of the Board of Registration of Medical Auxiliaries.

Its diploma is accepted by the Medical Profession as evidence of scientific knowledge and thorough practical training. The designatory letters are F.Ch.S. (Fellow), M.Ch.S. (Member), and A.Ch.S. (Associate).

The course of instruction covers the whole sphere of the theory and practice of Chiropody, and includes tuition in Anatomy, Physiology, Medicine, and Surgery in so far as these have a bearing on Chiropody. All lectures on Medical subjects are given by members of the Medical Profession and certain of the lectures are given in the Universities and Medical Schools of the cities where these Schools are situate. The training, which is approved by the Minister of Health, and the Dept. of Health for Scotland, occupies three years full-time instruction, and may be taken at any one of the following Schools, which are recognised by the Society:

Chelsea School of Chiropody,
Chelsea Polytechnic,
Manresa Road,
London, S.W.3.

London Foot Hospital School of Chiropody,
33 Fitzroy Square,
London, W.1.

Birmingham General Dispensary School of Chiropody
41 Newhall Street,
Birmingham, 3.

Manchester School of Chiropody,
Anson Road,
Victoria Park, Manchester, 14.

Royal Technical College, School of Chiropody,
28 and 29 The Crescent,
Salford, 5.

Edinburgh School of Chiropody,
81 Newington Road, Edinburgh.

Glasgow and West of Scotland College of Chiropody,
22 Windsor Terrace,
Glasgow, N.W.

Glasgow Southern Foot Hospital,
44 Cumberland Street,
Glasgow, C.5.

These Schools are attached to Foot Clinics where Students are afforded opportunities of seeing and treating those varied types of foot trouble which come within the province of the Chiropodist.

The Examinations in Anatomy, Physiology, Medicine, and Surgery are conducted by members of the Medical Profession from a panel approved by the Royal College of Physicians and Royal College of Surgeons of England respectively.

Further particulars may be obtained from the Secretary, L. W. Griffiths, F.A.C.C.A., A.C.I.S., or direct from any of the Schools referred to above.

WEST END HOSPITAL FOR NEUROLOGY & NEUROSURGERY

91, Dean Street, London, W.1.

Dean: T. ROWLAND HILL, M.D., F.R.C.P.

M.R.C.P. COURSES IN NEUROLOGY

Courses of Lecture-Demonstrations in Neurology, suitable for post-graduate students sitting this, and similar, higher examinations, are held in the Spring and Autumn of each year. The dates of the Courses are advertised in the medical press.

Enquiries: Secretary of the Medical School. *Telephone:* GERrard 3703.

INSTITUTE OF NEUROLOGY

(QUEEN SQUARE)
LONDON, W.C.1

(University of London—British Postgraduate Medical Federation)
Associated with: The National Hospital, Queen Square, and the Maida Vale Hospital for Nervous Diseases, Maida Vale

The Institute provides postgraduate training in the various departments of Neurology.

THE OUT-PATIENT PRACTICE is open at 10 o'clock at QUEEN SQUARE every day (except Saturday). A fee of £3 3s. per month is charged for attending the Out-Patient Department only.

THE IN-PATIENT PRACTICE at QUEEN SQUARE and MAIDA VALE is open at 10 o'clock, and a limited number of Clinical Clerks are appointed at both Hospitals. Fees: three months, £18; six months, £32.

Special courses of instruction are given during the summer, autumn and winter terms, and Clinical Demonstrations are given on Wednesday afternoons and Saturday mornings as advertised in the Medical Journals.

Application should be made to the Dean at the Institute.

MICHAEL KREMER.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL

TELEPHONE—EUSTON 5861

(UNIVERSITY OF LONDON), UNIVERSITY STREET, W.C.1

THE WINTER SESSION will commence on Tuesday, 1st October, 1957

THE SCHOOL IS FOR FINAL STUDIES only. STUDENTS are prepared for the degrees of the Universities of—OXFORD, CAMBRIDGE, LONDON, and for the Diplomas of other qualifying bodies.

FEES.—The fees for the complete Clinical Course are £190. The fees are payable, if desired, in three annual instalments of £65. There are no extras, as the fees include (i) Courses of Instruction in Pharmacy, Vaccination, and Fevers; (ii) Life subscription to the Medical Society; (iii) Subscription to the U.C.H. Magazine.

SCHOLARSHIPS, EXHIBITIONS and Prizes (value £3000) are awarded annually. Among the most important are:—

I. GOLDSMID ENTRANCE SCHOLARSHIPS, entitling the holder to the Final Course of Medical Study, are offered for competition annually in July, and are open to Students who are preparing for the Degrees of the Universities of London, Oxford, Cambridge, or other British Universities, or for the Diplomas of the Royal Colleges of Physicians and Surgeons.

II. GOLDSMID ENTRANCE EXHIBITION, entitling the holder to a reduction of £126 of the fees due for the Full Course of Final Medical Study.

III. FILLITER ENTRANCE SCHOLARSHIP IN PATHOLOGY, entitling the holder to a reduction of £123 of the fees due for the Full Course of Final Medical Study.
Candidates will be examined in any two of the following subjects: Anatomy, Physiology, General Pathology, and Bio-Chemistry. Candidates need take the examination in Pathology alone, if they desire to enter only for the Filliter Entrance Scholarship in Pathology.

All further information and Prospectus can be obtained from the Secretary, and the Dean can be interviewed at any time by appointment.

Dean—J. D. S. FLEW, M.D., F.R.C.O.G. *Vice-Dean*—B. J. HARRIES, F.R.C.S.

Secretary—Maj.-Gen. H. L. BIRKS, C.B., D.S.O.

BRITISH POSTGRADUATE MEDICAL FEDERATION

(UNIVERSITY OF LONDON)

THE INSTITUTE OF LARYNGOLOGY AND OTOLOGY

330/332, Gray's Inn Road, London, W.C.1

IN ASSOCIATION WITH

THE ROYAL NATIONAL THROAT, NOSE AND EAR HOSPITAL

The Institute is organised to provide instruction in this Specialty for the whole period of training necessary to reach full consultant standard. There are ample clinical and research facilities and teaching is carried on continuously daily throughout the year.

There are full-time courses of lectures and demonstrations suitable for those intending to take the D.L.O. (R.C.P. & S. Eng.); and the Final F.R.C.S. examinations in Otolaryngology.

There are also short courses for senior students in endoscopy, aural surgery, pathology and in the treatment of the deaf child.

A number of paid appointments, which are open to postgraduate students in the different stages of training, give opportunities of clinical experience and research.

Further information may be obtained from the Dean.

INSTITUTE OF BASIC MEDICAL SCIENCES

Royal College of Surgeons of England

British Postgraduate Medical Federation

(University of London)

A programme of teaching in the basic medical sciences has been arranged for medical and dental postgraduates. In addition to the practical demonstrations in the laboratories and dissecting room, lectures are also given.

Facilities are available for advanced study in the basic medical sciences for a period of 1–3 years.

Course of Demonstrations and Lectures in Anatomy, Physiology and Pathology (for limited numbers only) and a Course of Revision Lectures (120)

16th September–20th December, 1957
27th January–2nd May, 1958
Fees: £73 10 0. Lectures only £36 15 0.

(Applications for the course of demonstrations should be sent in at least 6 months in advance.)

Course of Demonstrations and Lectures in Anatomy, Physiology and Pathology in their Application to Dental Surgery and in Dental Anatomy and Histology

2nd December, 1957–31st January, 1958
2nd June–24th July, 1958
Fee: £31 10 0.

Full particulars may be obtained on application to:—

Mr. W. F. DAVIS, Secretary, Institute of Basic Medical Sciences, Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C.2 (Tel. HOLborn 3474).

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The SESSION will begin on 1st October, 1957.

Information regarding Courses for the Medical and Dental Degrees and for the Diplomas in Gynæcology and Obstetrics and in Psychological Medicine may be obtained on application to the DEAN of the School of Physic, Trinity College, Dublin.

London School of Hygiene and Tropical Medicine

(University of London)
Incorporating the Ross Institute

Diploma in Public Health

The whole-time course for the University of London's Academic Postgraduate Diploma in Public Health is designed primarily for qualified medical practitioners who intend to enter any branch of preventive medicine. The course commences at the beginning of October each year and lasts for nine months. There are now no vacancies on the 1957–58 course. Fee: 70 guineas (£73 10s.).

Diploma in Bacteriology

The whole-time course for the University of London's Academic Postgraduate Diploma in Bacteriology commences at the beginning of October each year and lasts for nine months. There are now no vacancies on the 1957–58 course. Applications for the subsequent session must be received not later than 1st March, 1958. The number of places is strictly limited. Fee: 70 guineas (£73 10s.).

Diploma in Tropical Medicine and Hygiene (Eng.)

The whole-time five months' course for the Conjoint Board's Diploma in Tropical Medicine and Hygiene is held twice a year commencing next on 30th September, 1957, and on 24th February, 1958. There are now no vacancies on the September course. Fee: 40 guineas (£42).

Certificate and Diploma in Tropical Medicine and Hygiene (Lond.)

The whole-time course for the University of London's Academic Postgraduate Certificate and Diploma in Tropical Medicine and Hygiene is designed to give advanced training in tropical medicine. The course commences at the beginning of October each year and lasts for nine months, the examination for the Certificate being held at the end of approximately four and a half months. Students must elect to study Clinical Tropical Medicine or Tropical Hygiene at the final part of the course. There are now no vacancies on the 1957–58 course. Fee: 70 guineas (£73 10s.) for the whole course: 40 guineas (£42) for the Certificate course only.

Certificate and Diploma in Applied Parasitology and Entomology (Lond.)

The whole-time course for the University of London's Academic Postgraduate Certificate and Diploma in Applied Parasitology and Entomology is designed mainly for graduates in medicine, veterinary medicine and veterinary science, but graduates in science or persons with approved non-graduate qualifications in medicine and veterinary medicine can be accepted. The course commences at the beginning of October each year and lasts for nine months, the examination for the Certificate being held at the end of approximately four and a half months. There are now no vacancies on the 1957–58 course. Applications for the subsequent session must be received not later than 1st April, 1958. The number of places is strictly limited. Fee: 70 guineas (£73 10s.) for the whole course: 40 guineas (£42) for the Certificate course only.

Short Course in Statistical Methods applied to Medicine and Epidemiology

The course in Statistical Methods applied to Medicine and Epidemiology is held annually on two days a week from approximately the beginning of March to approximately the end of June. Commencing next on 4th March, 1958. Students without medical qualification can be accepted. Applications must be received by the Registrar not later than 15th February. Fee: 15 guineas (£15 15s.).

Environmental Control

The ten-week course in Environmental Control is held twice a year commencing at approximately the beginning of October and beginning of March. Although intended primarily for health inspectors from abroad, the course is so planned as to be of value to medical officers and others interested in the health aspects of environmental control both at home and abroad. Fee: 26 guineas (£27 6s.).

Applications for admission to courses should be made to the Registrar, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1.

UNIVERSITY OF ST. ANDREWS

Chancellor—His Grace THE DUKE OF HAMILTON, P.C., G.C.V.O., A.F.C., LL.D., F.R.G.S.

Rector—The Right Honourable VISCOUNT KILMUIR, G.C.V.O.

Vice-Chancellor and Principal—THOMAS MALCOLM KNOX, M.A., LL.D., F.R.S.E.

The UNIVERSITY OF ST. ANDREWS includes the UNITED COLLEGE OF ST. SALVATOR AND ST. LEONARD AND ST. MARY'S COLLEGE IN ST. ANDREWS AND QUEEN'S COLLEGE IN DUNDEE.

FACULTY OF MEDICINE

Dean and Adviser of Studies at Queen's College, Dundee—Professor ALAN CHALMERS LENDRUM, M.A., B.Sc., M.D., A.R.P.S.

Adviser of Studies at St. Salvator's College, St. Andrews—Professor ROBERT WALMSLEY, M.D., F.R.C.S.E.

The University confers the following DEGREES AND DIPLOMAS:—M.B., Ch.B., M.D., Ch.M., Ph.D., D.P.H. (all open to men or women).

Application for admission as a medical student should reach the Dean not later than 30th June in any year.

SESSION 1957–58 commences on 8th OCTOBER, 1957. The whole curriculum may be taken at Queen's College, Dundee, or the first 2 years and 2 terms may be taken in St. Salvator's College, St. Andrews, and the remainder in Queen's College, Dundee.

CLINICAL INSTRUCTION.—Ample facilities at Dundee Royal Infirmary (510 beds), Maryfield Hospital (360 beds), King's Cross Hospital (270 beds), Ashludie Hospital (220 beds), Dundee Mental Hospital (700 beds), Dundee Eye Institution, Dental Hospital, and other Medical and Surgical Institutions in Dundee and district.

HOSPITAL APPOINTMENTS.—Numerous resident hospital appointments are available in the above institutions.

RESIDENCE HALLS.—For Men and for Women in St. Salvator's College, St. Andrews, and Queen's College, Dundee.

STUDENTS' UNIONS.—Athletic Grounds and Gymnasia in St. Andrews and in Dundee.

BURSARY (SCHOLARSHIP) COMPETITION.—*For Queen's College, Dundee, and St. Salvator's College, St. Andrews:* entry 15th February; Examination March.

BURSARIES EXCLUSIVELY FOR MEDICAL STUDENTS.—*At St. Salvator's College, St. Andrews:* Taylour Thomson (for women), four of £40 for 6 years; Malcolm (for men or women), £40 for 5 years, vacant annually. *At Queen's College, Dundee:* Hepburn (for men or women), £25 for 3 years.

BURSARIES FOR WHICH MEDICAL STUDENTS ARE ELIGIBLE.—*At St. Salvator's College, St. Andrews:* About ten Bursaries ranging in value from £60 to £20, tenable for 3 or 4 years, vacant annually. *At Queen's College, Dundee* Nine Entrance Bursaries of from £50 to £40 for 3 years, and four Bursaries of from £30 to £25 for allocation in the remaining years of the course.

RESIDENTIAL ENTRANCE SCHOLARSHIPS FOR MEN.—*At St. Salvator's College, St. Andrews:* Seven or eight of £100 competed for annually in March. Medical students are eligible.

PRELIMINARY EXAMINATION.—August and March. Entries 8th July and 1st February.

Consolidated annual fee for M.B., Ch.B. Course, covering tuition, use of laboratories and examination fees, £60.

PROVISION FOR POSTGRADUATE STUDY AND RESEARCH. Postgraduate Scholarships of £300 p.a. for 1 or 2 years available to graduates in all Faculties including Medicine.

Full information may be obtained from the DEAN OF THE FACULTY OF MEDICINE, Medical School, Dundee.

SCHOOL OF DENTISTRY

Adviser of Studies—Professor A. D. HITCHIN, M.D.S., F.D.S.R.C.S.Ed.

The University confers the DEGREES of B.D.S., M.D.S., D.D.Sc., and Ph.D. and the DIPLOMA IN PUBLIC DENTISTRY.

Full facilities for instruction are available in the Scientific and Medical Departments of the University, and Medical and Surgical Institutions.

The Dental Hospital is fully equipped for the training of Students in Mechanical, Prosthetic, and Operative Dentistry.

Financial assistance is available for students.

Full information may be obtained from the ADVISER OF STUDIES IN DENTISTRY, Park Place, Dundee.

College Gate, St. Andrews, June, 1957.

INSTITUTE OF PSYCHO-ANALYSIS

The Institute provides systematic training in the theory and practice of Psycho-Analysis. The course, which is compatible with employment in the London area, lasts approximately four years and comprises a personal analysis, clinical work under supervision and lectures and seminars.

For prospectus and further information application should be made to the Hon. Joint Training Secretaries, The Institute of Psycho-Analysis, 63, New Cavendish Street, London, W.1.

INSTITUTE OF PSYCHIATRY

(University of London)
(The Bethlem Royal Hospital and the Maudsley Hospital)
at
The Maudsley Hospital,
Denmark Hill, London, S.E.5.

The Institute, which is in the British Postgraduate Medical Federation, provides courses of instruction covering up to three years for postgraduate students who wish to specialise in psychiatry or prepare for the Academic Postgraduate Diploma in Psychological Medicine of the University of London or the Diploma in Psychological Medicine of the Conjoint Board. The subjects covered include anatomy and biochemistry of the nervous system, neurophysiology, pathology of nervous and mental diseases, psychiatry of children and adults, delinquency, principles of psychotherapy, forensic psychiatry and criminology, psychology, mental testing and statistics. Clinical training is available throughout the year. There is a special six months' course in psychiatry of children. Selected students are eligible for appointments as house officer and registrar at the Bethlem Royal Hospital and the Maudsley Hospital.

Facilities for research and supervision of study for higher degrees can be provided in clinical work and in the biochemical, physiological, neuro-endocrinological, neuropathological, and psychological laboratories.

A course for Honours Graduates in Psychology is available in clinical psychology for the Academic Postgraduate Diploma in Psychology. In conjunction with the Institute of Neurology, a course in the techniques of electroencephalography is provided for doctors who expect to take up electro-encephalographic appointments in hospitals.

Further information may be obtained from the Dean, Institute of Psychiatry, The Maudsley Hospital, Denmark Hill, London, S.E.5.

INSTITUTE OF UROLOGY

in association with
ST. PETER'S, ST. PAUL'S AND ST. PHILIP'S HOSPITALS

POSTGRADUATE COURSES OF UROLOGICAL INSTRUCTION

Weekend Courses of Lectures and Demonstrations beginning on Friday afternoon and ending on Sunday about tea time:
About once a month, as advertised.
"Essentials of Urology"
"Advanced Urology"
"Recent Advances in Urology"
Fees for each course — £5 5s. 0d.

Weekly Lectures:
October 1957—March 1958.
Day: Wednesday. Time: 5 p.m. No fee.

Guest Lecturers:
Twice a year at the Royal College of Surgeons.

The practice of the hospitals, including the use of the Institute museum, reading-room and library, is open to students attending the courses.

Applications should be made to the Secretary, Institute of Urology, 10, Henrietta-street, Covent Garden, W.C.2.

UNIVERSITY OF BRISTOL

FACULTY OF MEDICINE

The University grants the Degrees of Bachelor of Medicine and Surgery (M.B., Ch.B.), Master of Surgery (Ch.M.), Doctor of Medicine (M.D.), Bachelor of Dental Surgery (B.D.S.), Master of Dental Surgery (M.D.S.), and Bachelor of Veterinary Science (B.V.Sc.), as well as diplomas in Public Health (D.P.H.) and Dental Surgery (L.D.S.), and holds a training Course for Health Visitors.

For particulars apply to the Registrar, The University Bristol, 8.

THE UNIVERSITY OF SHEFFIELD

FACULTY OF MEDICINE

Dean—J. G. McCRIE, *O.B.E., T.D.*, M.B., F.R.C.P.Ed.

The University grants Degrees in Medicine and Surgery (M.B., Ch.B., M.D., Ch.M.) and in Dental Surgery (B.D.S., M.D.S.). It also grants a Diploma in Public Health (D.P.H.), a Diploma in Microbiology (Dip. Microbiol.) and a Diploma in Dental Surgery (L.D.S.). These are all open to men and women on equal terms.

The Session 1957–58 begins on October 7th.

Entries to the Medical and Dental Schools are strictly limited in order to ensure adequate lecture and laboratory accommodation for all students.

Lectures and laboratory courses are given in the University, whilst clinical instruction is provided in the general and special Hospitals in the City. The relatively ample number of hospital beds available renders the facilities for clinical instruction unusually large.

HALLS OF RESIDENCE.—FOR MEN: Crewe Hall, Clarkehouse Road, Sheffield, 10; Ranmoor House, Fulwood Road, Sheffield, 10; Stephenson Hall, Oakholme Road, Sheffield, 10.
FOR WOMEN: University Hall for Women, Endcliffe Vale Road, Sheffield, 10, and annexes.
Particulars of the Halls may be obtained from the Wardens.

A number of junior hospital appointments are open to qualified students of the School, both male and female.

Prospectuses containing details of the Medical and Dental Schools may be obtained, respectively, from the Dean of the Faculty of Medicine and the Director of Dental Studies; and one giving particulars of Entrance Scholarships from the undersigned.

A. W. CHAPMAN, Registrar.

THE UNIVERSITY OF LEEDS

DENTAL SCHOOL AND HOSPITAL

Warden: PROFESSOR T. TALMAGE READ, M.Ch.D., F.R.F.P.S., F.D.S.R.C.S., H.D.D., L.R.C.P.

The First Term begins on **October 1st, 1957.**

The degrees of B.Ch.D. and M.Ch.D., as well as a diploma, L.D.S., are conferred by the University.

The first year studies are taken in the Science Departments of the University and a complete professional education is provided by the Dental School and Hospital, the Medical School and the General Infirmary at Leeds.

For prospectus and further information, application should be made to:
The Warden, Dental School and Hospital, Leeds, 1

UNIVERSITY OF WALES

THE WELSH NATIONAL SCHOOL OF MEDICINE, CARDIFF

Courses of Instruction for Medical Degrees and Diplomas

Courses of Instruction are conducted for Medical Degrees (M.B., B.Ch.) of the University of Wales.

N.B.—*Application for admission must be made before 1st December in the year immediately preceding that in which admission is sought.*

FEES. The Composition fee for each year of study is £60. The approximate total cost of the six years' course is £487, including Laboratory fees, Students' Societies fees, and the Matriculation, Examination and Graduation fees of the University of Wales. Certain Scholarships, &c., are available.

POSTGRADUATE STUDY. Facilities are provided for approved research. Postgraduate Scholarships are available ranging in value from £150 to £250 per annum.

Complete Postgraduate Courses of Instruction are conducted in Radiology R.C.P. & S.(Eng.), and for the Diploma in Public Health (D.P.H.), and Tuberculous Diseases Diploma (T.D.D.) of the University of Wales. A short course on Tuberculosis and Diseases of the Chest is also conducted. Postgraduate Courses for Practitioners are arranged.

Application for admission to any of the Courses should be made to the PROVOST, The Welsh National School of Medicine 34, Newport Road, Cardiff, from whom further particulars may be obtained.

THE ROYAL LONDON HOMŒOPATHIC HOSPITAL

Great Ormond Street and Queen Square, London, W.C.1

Course of Instruction in the **Principles and Practice of Homœopathy** for Medical Practitioners and Senior Students of Medicine.

These lectures, which are given under the auspices of The Homœopathic Research and Educational Trust, deal with the subjects required for examination for the Diploma of The Faculty of Homœopathy.

The Complete Course, which comprises three Sessions, commences on 11th October, 1957, and is preceded by an introductory lecture at the Hospital on 10th October at 6 p.m. by

N. J. PRATT, M.R.C.S., L.R.C.P., M.F. HOM.

The subjects dealt with throughout the course are:

Homœopathic Philosophy and Prescribing

Homœopathic Materia Medica and Therapeutics

The Study of the Repertory

combined with Clinical Tutorials.

Fee for registered medical practitioners £10 10s. per session, medical students admitted without charge. Scholarships and Grants to enable doctors to attend this Course are offered by The Homœopathic Research and Educational Trust.

Full particulars can be obtained on application to the Dean of The Education Course at the Hospital.

INCORPORATED 1505

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

COPIES OF REGULATIONS for the FELLOWSHIP, LICENCE, FELLOWSHIP IN DENTAL SURGERY, and LICENCE IN DENTAL SURGERY, containing Dates of Examinations, may be had on application to—

DAVID THOMSON, Clerk of the College.

UNIVERSITY OF EDINBURGH

FACULTY OF MEDICINE

The University grants the Degrees of Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Dental Surgery (B.D.S.), Master of Dental Surgery (M.D.S.), Bachelor of Veterinary Medicine and Surgery (B.V.M. & S.), and Doctor of Veterinary Medicine and Surgery (D.V.M. & S.).

The approximate cost of the 6 years' course for the Degrees of M.B., Ch.B. is £390. The curriculum for the Degree of B.D.S. is of 5 years' duration, and the approximate cost is £315. The course for the Degree of B.V.M. & S. extends over five years; the approximate cost being £315. Prospective students are normally required to make application to the Dean of the Faculty of Medicine, on a prescribed form, not later than 31st December of the year prior to that in which they wish to enter the Faculty.

The University grants Diplomas in Public Health, Psychiatry, Medical Radiodiagnosis, Medical Radiotherapy, Tropical Medicine and Hygiene, Tropical Veterinary Medicine, and Veterinary State Medicine, and full courses of instruction for the Diplomas are provided.

A Nurse-Tutor Certificate is granted in conjunction with the Royal College of Nursing. Inquiries regarding the course should be addressed to Miss Stephenson, Director, University Nursing Teaching Unit, 40b, George Square, Edinburgh.

In the various Departments of the Faculty of Medicine provision is made for research by students of graduate standing.

A copy of the Faculty Programme may be obtained from the Dean of the Faculty of Medicine, University, Teviot Place, Edinburgh, 8. Programmes regarding Degrees in other Faculties may be obtained from the Matriculation Office, University, South Bridge, Edinburgh, 8.

CHARLES H. STEWART, Secretary to the University.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

The EXAMINATIONS for the MEMBERSHIP of the College are held quarterly during the FIRST WEEK of JANUARY, APRIL, JULY, and OCTOBER.

Candidates for the MEMBERSHIP must submit their applications and testimonials to the Secretary one calendar month before the date at which they wish to appear for Examination.

For the regulations in regard to the LICENCE of the College (as a single qualification) and in regard to the various qualifications granted by the College and all other information, application should be made to the Secretary.

COURSE FOR D.P.M. PART II

An 8-WEEK COURSE suitable for part II Conjoint D.P.M. will be held in OCTOBER and NOVEMBER and will consist of lectures, tutorials and demonstrations in clinical psychiatry and allied subjects. The course will be open to candidates working for the D.P.M. or for other approved practitioners working in the field of psychiatry desirous of postgraduate tuition. Fee £32.

Applications should be made to the Director of Medical Postgraduate Studies, The University, Clifton, Bristol, 8.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS

The next EXAMINATION for the FELLOWSHIP *qua* Physicians of the Royal Faculty of Physicians and Surgeons will begin on TUESDAY, 1ST OCTOBER, 1957.

Applications for admission to the examination should be lodged not later than 10th September.

A copy of the Regulations and a form of application may be obtained from the Registrar, Royal Faculty of Physicians and Surgeons, 242, St. Vincent-street, Glasgow, C.2.

PADDINGTON GROUP HOSPITAL MANAGEMENT COMMITTEE

THE TAVISTOCK CLINIC

INTRODUCTORY COURSE ON PSYCHOLOGICAL PROBLEMS IN GENERAL PRACTICE

A course of about 10 weekly discussion meetings for a limited number of general practitioners will start in the AUTUMN. Meetings will be held on WEDNESDAYS, 2—4 P.M. Admission is free.

Apply in writing for further particulars to Medical Director, Tavistock Clinic, 2, Beaumont-street, W.1.

BRITISH POSTGRADUATE MEDICAL FEDERATION
UNIVERSITY OF LONDON

THE SCIENTIFIC BASIS OF MEDICINE
1957–1958

FIRST TERM: OCTOBER–DECEMBER, 1957

The following lectures, which are designed especially for research workers and specialists in training, will be delivered at The London School of Hygiene and Tropical Medicine, Keppel-street, W.C.1, on Tuesday and Thursday afternoons at 5.30 P.M. during the first term of the session 1957–58. Admission free without ticket.

Date	Lecturer	Title
October:		
Thurs., 17th. In the Beveridge Hall, Senate House, Univ. of London, W.C.1.	Dr. JULIAN HUXLEY, M.A., D.SC., F.R.S.	Some Biological Aspects of Cancer
Tues., 22nd	Prof. W. S. PEART, M.D., M.R.C.P. (Professor of Medicine, St. Mary's Hospital Medical School)	Some Biochemical Aspects of Hypertension
Thurs., 24th	Prof. G. L. MONTGOMERY, T.D., PH.D., M.D., F.R.F.P.S.G., F.R.S.(ED.), M.R.C.P.(E.), (Professor of Pathology, University of Edinburgh)	Some Problems in the Pathology of Coronary Artery Disease
Tues., 29th	Dr. J. P. SHILLINGFORD, M.D., M.R.C.P. (Lecturer, Department of Medicine, Postgraduate Medical School of London, Member, Scientific Staff, Medical Research Council)	The Study of the Circulation by Dye Dilution Curves
Thurs., 31st	Dr. ROSEMARY BIGGS, B.SC., PH.D., M.D. (Department of Pathology, Radcliffe Infirmary, Oxford)	Hæmophilia and Christmas Disease
November:		
Tues., 5th	Prof. J. V. DACIE, M.D., F.R.C.P. (Professor of Hæmatology, Postgraduate Medical School of London)	Acquired Hæmolytic Anæmia
Thurs., 7th	Dr. H. LEHMANN, PH.D., M.D., F.R.I.C. (Senior Lecturer, Department of Pathology, St. Bartholomew's Hospital Medical College)	Variations in Hæmoglobin Synthesis
November (contd):		
Tues., 12th	Dr. D. L. MOLLIN, B.SC., M.B., CH.B. (Lecturer, Department of Pathology, Postgraduate Medical School of London)	The Megaloblastic Anæmias
Thurs., 14th	Dr. H. O. SCHILD, M.D., PH.D., D.SC. (Reader in Pharmacology, University College London)	Mechanism of Anaphylaxis
Tues., 19th	Dr. J. A. B. GRAY, M.A., M.B., B.CHIR. (Reader in Physiology, University College London)	Peripheral Mechanisms Underlying Sensations
Thurs., 21st	Dr. J. H. HUMPHREY, M.B., B.CHIR., M.D. (Department of Biological Standards, National Institute for Medical Research)	Antibody Metabolism
Tues., 26th	Dr. G. GORDON, B.SC., D.M. (University Lecturer and Demonstrator in Physiology, Oxford)	Central Sensory Representation
Thurs., 28th	Dr. H. J. TAYLOR, PH.D., B.SC. (Royal Naval Physiological Laboratory, Alverstoke)	Physiological Problems Associated with Diving and Underwater Swimming
December:		
Tues., 3rd	Dr. K. W. CROSS, PH.D., M.B., B.S., M.R.C.P. (Reader in Physiology, St. Mary's Hospital Medical School)	Anoxia of the New-Born
Thurs., 5th	Dr. R. J. W. REES, B.SC., M.B., B.S. (Department of Bacteriology and Virus Research, National Institute for Medical Research)	Experimental Approach to the Problems of Resistance to Tuberculosis

The second part of this series will commence on Thursday, 9th January, 1958.

UNIVERSITY OF GLASGOW

LECTURESHIP IN SURGERY AT THE WESTERN INFIRMARY

Applications are invited for a Lectureship in Surgery at the Western Infirmary. Salary according to placement on University scale for clinical teachers. The final maximum is £1900 p.a. F.S.S.U. and family allowance benefits.

Applications (12 copies) should be lodged, not later than 27th September, 1957, with the undersigned, from whom further particulars may be obtained.

ROBT. T. HUTCHESON, Secretary of University Court.

UNIVERSITY OF GLASGOW

LECTURESHIP IN PATHOLOGY AT THE WESTERN INFIRMARY

Applications are invited for a Lectureship in Pathology. Salary according to placement on University scale for clinical teachers. The final maximum is £1900 p.a. F.S.S.U. and family allowance benefits.

Applications (12 copies) should be lodged, not later than 27th September, 1957, with the undersigned, from whom further particulars may be obtained.

ROBT. T. HUTCHESON, Secretary of University Court.

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THE UNIVERSITY OF LEEDS. Department of Anæsthetics. Applications are invited from candidates trained in physiology for appointment as Full-time RESEARCH ASSISTANT in the Department of Anæsthetics. The appointment is suitable for a science graduate intending to work for a higher degree and will be for 1 year in the first instance subject to renewal. Laboratory facilities will be provided.

Applications (3 copies), stating date of birth, qualifications and experience, together with the names of 2 referees, should reach the Registrar, The University, Leeds, 2 (from whom further particulars may be obtained), not later than 23rd September, 1957.

Hospital Services : Senior Appointments

BIRMINGHAM REGIONAL HOSPITAL BOARD. Part-time CONSULTANT RADIOLOGIST (9 notional half-days weekly). Duties at Royal (1 notional half-day) and New Cross (2 notional half-days) Hospitals, Wolverhampton; Hallam (3 notional half-days) and West Bromwich and District General (3 notional half-days) Hospitals, and other group hospitals. Wide experience specialty/higher qualification required.

Applications (15 copies), stating name, age, nationality, present and previous appointments and details of 3 referees, to Secretary, 10, Augustus-road, Birmingham, 15, by 30th October, 1957.

CREWE AND DISTRICT MEMORIAL HOSPITAL. (108 Beds—Acute.) Locum-ANÆSTHETIST required urgently for the month of September. Salary in accordance with Whitley Council scale.

Apply immediately with full details, giving dates available, to the Group Secretary, Group Headquarters, Barony Hospital, Nantwich, Cheshire.

EAST ANGLIAN REGIONAL HOSPITAL BOARD. CONSULTANT PHYSICIAN in Geriatrics (whole-time), Ipswich and East Suffolk Hospital Group. The successful candidate will be required to play a major part in the organisation and further development of treatment and rehabilitation services for aged or long-term patients, undertake domiciliary consultations and maintain effective liaison with general practitioners and the health and welfare services of local authorities. Higher qualifications, good experience in general medicine and special experience in geriatrics essential.

Applications (8 copies), stating age, experience, and names of 3 referees, to the Board's Senior Administrative Medical Officer, 117, Chesterton-road, Cambridge, by 9th September, 1957. Candidates invited to visit hospitals concerned by direct arrangement with Hospital Management Committee Secretary, Ipswich and East Suffolk Hospital, Anglesea Road Wing, Ipswich.

MANCHESTER REGIONAL HOSPITAL BOARD. Applications are invited for the post of Locum CONSULTANT SURGEON (8 notional half-days per week) with the Stockport and Buxton Hospital Management Committee. The main duties will be at Stockport Infirmary and Stepping Hill Hospital. Salary according to individual status.

Applications, stating age, qualifications and details of appointments held, together with the names of 2 referees, to the Secretary, Stockport and Buxton Hospital Management Committee, 59B, Shaw-heath, Stockport.

MANCHESTER REGIONAL HOSPITAL BOARD invites applications for the post of Locum SENIOR HOSPITAL MEDICAL OFFICER in Pathology to the South Manchester Hospital Management Committee for 9 weeks commencing October, 1957, or a Locum REGISTRAR in Pathology for 12 weeks commencing October, 1957. Duties divided between Withington Hospital Laboratory and Wythenshawe Laboratory, and would include all branches of clinical pathology except biochemistry.

Applications, with the names of 2 referees, to be forwarded to the Group Secretary, Withington Hospital, Manchester, 20.

LEEDS REGIONAL HOSPITAL BOARD. Applications are invited from medical practitioners for the appointment of ASSISTANT SENIOR MEDICAL OFFICER on the staff of the Senior Administrative Medical Officer at the Board Headquarters, Harrogate, at a salary of £1680–£80(4)–£100(1)–£2100 p.a. The officer concerned will be required to assist generally the Senior Administrative Medical Officer and particularly with the administration of the Board's Mental Health Services, for which expert psychiatric advice will be available. Previous experience of medical administration and a knowledge of mental health work, although not essential, would be considered an advantage.

Applications, with full details of qualifications and experience, together with the names of 3 referees, to be sent to the Secretary, Park-parade, Harrogate, by 14th September, 1957.

LEEDS REGIONAL HOSPITAL BOARD. Applications are invited from medical practitioners for the appointment of REGIONAL PSYCHIATRIST. The person appointed will be employed for 7/11ths of his time on administrative duties on the staff of the Senior Administrative Medical Officer at the Board's Headquarters, Harrogate (salary scale, whole-time £2300–£2875 p.a.), and for 4/11ths of his time on Consultant clinical work (salary scale, whole-time £2205–£3255 p.a.). The proportion of time spent on administrative and clinical duties will be subject to review from time to time. It is hoped that arrangements will be made for the successful candidate to work in association with the Leeds University Department of Psychiatry for at least 1 session per week. Candidates should hold high qualifications in medicine and psychiatry and have wide experience in general psychiatry, including administrative experience of both inpatient and outpatient work.

Applications (12 copies), with full details of qualifications and experience together with the names of 3 referees, to be sent to the Secretary, Park-parade, Harrogate, by 14th September, 1957.

LEEDS REGIONAL HOSPITAL BOARD.

CONSULTANTS in Anæsthetics (maximum part-time sessions):

(i) Hospitals in the East Riding of Yorkshire—mainly at Westwood Hospital, Beverley. 1 session at Hull Royal Infirmary. Person appointed to reside in Beverley.

(ii) Hospitals in the Leeds A and B Groups (mainly at St. James's Hospital). Person appointed to reside in Leeds.

Whole-time CONSULTANT in Psychiatry for duties at Storthes Hall Hospital, Kirkburton, near Huddersfield (2680 Beds). 4-bedroomed detached house available.

CONSULTANT(S) in Child Psychiatry for the York, Scarborough and Harrogate areas—applications are invited from practitioners wishing either to undertake whole-time or maximum part-time service, or a limited number of sessions at any of the 3 undermentioned centres. Applicants for sessional employment should indicate the number of sessions and the area preferred.

The duties to be covered are associated with the York (6 sessions), North Riding (3 sessions) and West Riding (2 sessions) Education Committees, with additional duties in connection with the York Corporation Mental Health Service.

Applications (12 copies), stating age, qualifications and details of present and previous appointments with dates, and names and addresses of 3 referees, to the Secretary, Park-parade, Harrogate, by 14th September, 1957.

LIVERPOOL REGIONAL HOSPITAL BOARD. Applications are invited for the post of Whole-time ASSISTANT ANÆSTHETIST (Senior Hospital Medical Officer) with duties in the North Liverpool, Liverpool and District Eastern and Liverpool Region Children's Groups. Candidates should have considerable experience in anæsthesia and should be Fellows of the Faculty of Anæsthetists.

Forms of application from Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 19, James-street, Liverpool, 2, to be returned not later than 21st September, 1957.

VINCENT COLLINGE, Secretary to the Board.

LIVERPOOL REGIONAL HOSPITAL BOARD. Applications are invited for the post of Part-time CONSULTANT OBSTETRICIAN AND GYNÆCOLOGIST giving 4 notional half-days per week to the North Wirral and Birkenhead Groups. Applicants should possess the M.R.C.O.G. and a higher qualification in surgery would be considered an advantage.

Forms of application from Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 19, James-street, Liverpool, 2, to be returned not later than 21st September, 1957.

VINCENT COLLINGE, Secretary to the Board.

OXFORD REGIONAL HOSPITAL BOARD. Warneford AND PARK HOSPITALS, OXFORD. Applications are invited for the whole-time or maximum part-time post of CONSULTANT in Child Psychiatry on the establishment of the above hospitals within the Oxford Area Department of Psychiatry. The principal duties are in the field of child psychiatry, and include duties at child guidance clinics and outpatient clinics, and charge of beds for children at the Park Hospital. There will also be some work with adults. Applicants should hold the D.P.M. and a higher qualification in general medicine or pædiatrics is desirable.

Full particulars of the post may be obtained from the Physician-Superintendent, Warneford Hospital, Oxford, and prospective candidates may visit the hospitals and Child Guidance Clinic by arrangement. Applications (12 copies), giving full details and the names of 3 referees, should reach the Secretary, 43, Banbury-road, Oxford, by 30th September, 1957.

SCOTLAND. SOUTH-EASTERN REGIONAL HOSPITAL BOARD. Post of Whole-time or maximum Part-time OBSTETRICIAN AND GYNÆCOLOGIST (Consultant status) to the West Fife Group of hospitals (50 obstetric and 14 gynæcological beds).

Apply, giving particulars of age, qualifications and previous experience, and the names of 3 referees, to the Secretary, 11, Drumsheugh-gardens, Edinburgh, 3, within 30 days.

SHEFFIELD REGIONAL HOSPITAL BOARD. Part-time ASSISTANT ANÆSTHETIST for 3 notional half-days per week required. Grimsby General Hospital. Salary within Senior Hospital Medical Officer scale.

Application forms and further details from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield. Forms to be returned by 21st September, 1957.

SHEFFIELD. THE UNITED SHEFFIELD HOSPITALS. Applications invited for the post of ASSISTANT NEUROLOGIST (Consultant grade) with main duties at the Royal Hospital and its Fulwood Annexe, and at the Royal Infirmary. The appointment will be maximum part-time.

Applications (16 copies), stating age, qualifications and experience, together with the names and addresses of 3 referees, should be sent not later than 28th September, 1957, to the Chief Administrative Officer, The United Sheffield Hospitals, Central Office, West-street, Sheffield, 1, from whom further details may be obtained.

SYDNEY. ROYAL SOUTH SYDNEY HOSPITAL, Joynton-avenue, ZETLAND, SYDNEY, AUSTRALIA. (Acute Hospital of 100 Beds.) Applications are invited from registered medical practitioners for the position of MEDICAL SUPERINTENDENT at the above Hospital, situated in a large industrial area. Total attendances Casualty and Outpatients Department —61,000 per year. Accommodation available at the Hospital for a single man. Salary in accordance with determination approved by the Hospitals Commission of N.S.W., at present, £A2014 p.a., less £188 a year for board and residence.

Applications endorsed "Medical Superintendent," stating age, qualifications, experience, nationality and marital status together with copies of 3 testimonials, to be forwarded to reach the undersigned not later than 1st October, 1957. The successful applicant will be required to commence duties during January, 1958.

R. T. WRIGHT,
Secretary and Chief Executive Officer.

WELSH REGIONAL HOSPITAL BOARD. Additional CONSULTANT RADIOLOGIST, Cardiff Hospital Management Committee. Visits to several hospitals in Cardiff and neighbouring Group areas. Optional whole-time/maximum part-time appointment.

Applications (12 copies), naming 3 referees, to Senior Administrative Medical Officer, Temple of Peace, Cathays Park, Cardiff, within 21 days.

AUSTRALIA. THE BOARD OF MANAGEMENT OF ALFRED HOSPITAL, PRAHRAN, VICTORIA, AUSTRALIA, invite applications from duly qualified medical practitioners and will be received by the undersigned until 10th October, 1957, for the appointment of ASSISTANT to Director of Anæsthesia and Resuscitation. Applicants should have had at least 2 years' experience in anæsthesia since graduation and should hold a senior qualification. Salary will be within the range of £A1750 and £A2250 p.a. on appointment according to qualifications and experience. The Department of Anæsthesia and Resuscitation is responsible for arrangements for anæsthesia and resuscitation within Alfred Hospital which is a general teaching hospital of 441 public and 90 private beds. Postgraduate training in anæsthesia is conducted. The Hospital undertakes major cardiac surgery, including research, and the Anæsthetist appointed to the post would be required to take part in both the research and routine work associated with this project.

Further information may be obtained from the Director of Anæsthesia and Resuscitation. C. G. RANKIN, Manager.

MELBOURNE, VICTORIA, AUSTRALIA. CANCER INSTITUTE BOARD. Applications are invited from suitably qualified medical practitioners for the position of CONSULTANT RADIOTHERAPIST. In addition to clinical duties at Melbourne, the appointee will be required to conduct consultative peripheral clinics within the State of Victoria. The Institute has modern equipment for radiotherapy, including a 4 M.E.V. Linear Accelerator, and other well-appointed services for treatment of inpatients and outpatients (18,500 attendances annually). There are facilities for research in the clinical sphere, medical physics and pathology. The full-time salary at commencement will be at the rate of £A3306 6s. 8d. p.a. Other terms of the appointment include : (*a*) Rights to limited private practice under certain conditions ; (*b*) Superannuation ; (*c*) Long-service leave, recreational and sick leave entitlements. The position is non-resident. An appointee from overseas will be granted first-class fares for himself and family also an allowance of £200 sterling for the transport of furniture and personal effects.

Further information is available from the undersigned with whom applications close on 31st October, 1957.

A. F. CAMERON, Manager and Secretary.

Hospital Services : Junior Appointments

BOLINGBROKE HOSPITAL, Wandsworth Common, S.W.11. HOUSE PHYSICIAN (resident), vacant 14th October, 1957. Open to registered practitioners and pre-registration candidates.

Apply Hospital Secretary, enclosing copies of 3 recent testimonials, by 11th September, 1957.

BROMPTON HOSPITAL, S.W.3. Applications invited for the post of RESIDENT HOUSE PHYSICIAN (3 vacancies). 2 vacancies for 6 months from 1st November, 1957. Duties include work in Outpatient Department and wards. 1 vacancy for 9 months from 1st November, 1957. The first 3 months at Brompton Hospital Sanatorium, Frimley, and the following 6 months at the Hospital in London covering work in Outpatient Department and wards. Salary at the rate of £577 10s. p.a.

Applications, stating age, qualifications with dates, nationality and appointments held, together with copies of testimonials, by 7th September, 1957, to—

KENNETH A. F. MILES, House Governor.

CENTRAL MIDDLESEX HOSPITAL, Park Royal, N.W.10. Applications are invited for the post of SENIOR HOUSE OFFICER in the Department of Pathology. The appointment will be for 6 months in the first instance. Post vacant on 27th October, 1957.

Applications, with names of 2 referees, to Medical Director by 20th September, 1957.

CENTRAL MIDDLESEX HOSPITAL, Park Royal, N.W.10. NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. REGISTRAR in Pædiatric Department, whole-time, non-resident except when on duty, under supervision of Consultant Pædiatrician. Neonatal experience desirable. Commencing 1st November, 1957. Hospital may be visited by appointment.

Application forms obtainable from, and returnable to, Group Secretary, Central Middlesex Group Hospital Management Committee, Park Royal, N.W.10. Closing date 14th September, 1957.

CONNAUGHT HOSPITAL, Walthamstow, E.17. (123 Beds.) Applications are invited for the post of SECOND CASUALTY OFFICER with duties in the Department of Orthopædic and Traumatic Surgery (Senior House Officer grade). Recognised for F.R.C.S. Salary £819 10s. p.a., less £150 p.a. for board, lodging, &c.

Applications, with full details and copies of 2 recent testimonials, to be sent immediately to Secretary, Forest Group Hospital Management Committee, Langthorne-road, E.11.

FOUNTAIN GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners (Male or Female, resident or non-resident) for the appointment of JUNIOR HOSPITAL MEDICAL OFFICER (National Health Service salary scale). Fountain Group caters for 660 mentally deficient children, 80 adult female defectives, and 50 blind children, and provides wide experience in neurology, pædiatrics and child psychology, as well as in mental deficiency. There are clinical, neuropathological and biochemical research units, and clinical conferences are held weekly. Numerous lectures and demonstrations are given to students and graduates.

Applications, giving full particulars and names of 3 referees, to Secretary, Fountain Hospital, Tooting-grove, London, S.W.17.

EASTERN HOSPITAL, London, E.9. (Fevers.) Applications are invited for appointment as registered RESIDENT HOUSE PHYSICIAN. Duties may include some work in Chest Unit. Facilities for postgraduate study for higher qualifications.

Apply Group Secretary, Hackney Hospital, London, E.9, by 6th September, quoting EH/HO.

GERMAN HOSPITAL, London, E.8. (General—157 Beds.) Applications are invited for the 12 months appointment, vacant 16th September, 1957, of SENIOR HOUSE SURGEON (general surgery), and should reach the Group Secretary, Hackney Hospital, E.9, by 13th September, quoting GH/SHO.

GUY'S HOSPITAL, S.E.1. Applications are invited for the post of Part-time REGISTRAR (mid-grade) to the Endocrine and B.M.R. Department, with duties on 7 sessions per week, commencing 1st October, 1957.

Forms of application are obtainable from, and should be lodged with, the Superintendent, Guy's Hospital, London Bridge, S.E.1, not later than 5th September, 1957.

HENDON ISOLATION HOSPITAL, Goldsmith-avenue, London, N.W.9. (92 infectious diseases beds and 20 gynæcological beds.) JUNIOR HOSPITAL MEDICAL OFFICER (resident) required at above Hospital. Previous similar experience essential.

Apply, stating age, nationality, qualifications and details of experience, together with the names and addresses of 2 referees, to Group Secretary, Edgware General Hospital, Edgware, Middlesex, by 7th September, 1957.

HIGHLANDS GENERAL HOSPITAL, Winchmore-hill, N.21. SENIOR HOUSE OFFICER (medical), resident, for Chest Unit (100 Beds), vacant 27th September, 1957. Duties include tuberculosis work and investigation and treatment of chest diseases under supervision of the Finchley Chest Clinic. Also general medical and geriatric work.

Applications, with copies of 3 testimonials, to Hospital Secretary.

KING EDWARD MEMORIAL HOSPITAL, Ealing, W.5. SOUTH WEST MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE. HOUSE OFFICER to General Surgeon with some E.N.T. duties, vacant 1st October. Preference given to persons seeking pre-registration post.

Applications, stating age, nationality, qualifications with dates, and experience, together with copies of 2 recent testimonials, to Group Secretary, West Middlesex Hospital, Isleworth, by 10th September, 1957.

LAMBETH HOSPITAL, Brook-drive, S.E.11. South WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited from registered medical practitioners for the post of SURGICAL REGISTRAR. The appointment is normally for 2 years, but is subject to review at the end of 1 year. It is recognised for the F.R.C.S. Duties include general surgery and genito-urinary work. The post is resident or non-resident, but if the latter the successful applicant will be required to sleep in on nights on duty.

Forms of application (enclosing self-addressed envelope) from the Secretary of the Hospital, to whom all applications should be returned not later than 14th September, 1957.

LONDON CHEST HOSPITAL. Hospitals for Diseases of THE CHEST. A vacancy occurs 1st November for RESIDENT SURGICAL OFFICER. Appointment for 6 months, with prospect of renewal. Post graded as Senior House Officer or Registrar, according to qualifications and previous surgical experience.

Applications, stating date of birth, qualifications with dates, and previous appointments held, with copies of 3 testimonials, should reach the undersigned not later than 20th September.

THOMAS BROWN, House Governor.

London Chest Hospital, E.2.

LONDON CHEST HOSPITAL. Hospitals for Diseases OF THE CHEST. Applications are invited for the post of MEDICAL REGISTRAR. The appointment is for 1 year in the first instance and is non-resident. Duties include ward rounds, outpatient clinics and attendance at the Country Branch, near Letchworth.

Applications, stating date of birth, qualifications with dates, and previous appointments held, with copies of 3 testimonials, should reach the undersigned not later than 14th September.

THOMAS BROWN, House Governor.

London Chest Hospital, E.2.

LONDON CHEST HOSPITAL. Hospitals for Diseases OF THE CHEST. A vacancy occurs 1st November, 1957, for RESIDENT HOUSE SURGEON at the Hospital's Country Branch, near Hitchin and Letchworth, Herts. The post is graded as Senior House Officer and the appointment, which provides excellent opportunities for experience in thoracic surgery, is for 6 months.

Applications from registered medical practitioners, stating date of birth, qualifications with dates, and previous appointments held, with copies of 3 testimonials, should reach the undersigned not later than 20th September.

THOMAS BROWN, House Governor.

London Chest Hospital, E.2.

LONDON HOSPITAL, Whitechapel, E.1. Applications are invited for the post of REGISTRAR to the Department of Psychiatry. The post is vacant on 1st October, 1957. A higher qualification, although desirable, is not essential.

Applications (12 copies), giving the names and addresses of 3 referees, should be received by the undersigned by 9th September, 1957. H. BRIERLEY, House Governor.

MARLBOROUGH DAY HOSPITAL, 38, Marlborough-place, N.W.8. NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. PSYCHIATRIC REGISTRAR (whole-time). Successful applicant required to undergo personal analysis, which will be given free of charge. Hospital may be visited by direct appointment.

Application forms obtainable from, and returnable to, Group Secretary, Central Middlesex Group Hospital Management Committee, Acton-lane, N.W.10, by 10th September.

MARIE CURIE HOSPITAL, 66, Fitzjohn's-avenue, Hampstead, N.W.3. GYNÆCOLOGICAL HOUSE SURGEON (radiotherapy), resident, required immediately.

Applications, with copies of testimonials, to the Administrative Officer.

METROPOLITAN EAR, NOSE AND THROAT HOSPITAL at ST. MARY ABBOTS HOSPITAL, Marloes-road, Kensington, W.8. HOUSE SURGEON (E.N.T.) required. Vacant 6th September. Post recognised for D.L.O. Resident appointment for 6 months in first instance.

Applications by 13th September, 1957, on forms obtainable from the Hospital Secretary (L80), St. Mary Abbots Hospital.

MOORFIELDS EYE HOSPITAL (High Holborn Branch), London, W.C.1. Applications are invited from Male practitioners for the post of SENIOR HOUSE OFFICER (non-resident). The successful candidate will be required to take up his duties on 1st December, 1957. If recommended by the Medical Committee, he will be eligible for appointment from 1st June, 1958, to the posts of third, second, and first resident Surgical Officer (Registrar grade) consecutively for a period of 6 months in each case making a total period of service of 2 years. Experience in ophthalmology is essential.

Forms of application are obtainable from the undersigned to whom they should be returned with not more than 3 testimonials by 13th September, 1957. J. P. HEMING, Secretary.

NEW END HOSPITAL, London, N.W.3. Applications are invited for the post of HOUSE PHYSICIAN (general medicine), vacant 1st October, 1957. Preference will be given to pre-registration candidates.

Application forms from Group Secretary, 46, Cholmeley-park, N.6 (ARC. 3070, Ext. 527), and returnable to the Surgeon-Superintendent, New End Hospital, by 9th September, 1957.

NEW END HOSPITAL, London, N.W.3. Applications are invited for 2 posts of HOUSE SURGEON (general surgery), vacant 1st October, 1957. Preference will be given to pre-registration candidates for 1 position.

Application forms from Group Secretary, 46, Cholmeley-park, N.6 (ARC. 3070, Ext. 527), and returnable to the Surgeon-Superintendent, New End Hospital, by 9th September, 1957.

NORTH EAST METROPOLITAN REGIONAL HOSPITAL BOARD.

REGISTRAR in Diseases of the Chest (resident), Rochford General Hospital and Lancaster House Chest Clinic, Southend-on-Sea, Essex. Experience in general medicine and special experience in diseases of the chest essential for treatment of respiratory tuberculosis and other chest diseases.

MEDICAL REGISTRAR (non-resident, near Hospital), Whipps Cross Hospital, Leytonstone, E.11.

CASUALTY REGISTRAR (resident), Oldchurch Hospital, Romford, Essex.

SURGICAL REGISTRAR (resident or non-resident, unfurnished bungalow available), Black Notley Hospital, near Braintree, Essex. Recognised for F.R.C.S.

SURGICAL REGISTRAR (resident or non-resident, sleeping in on duty nights), Bethnal Green Hospital, London, E.2. Recognised for F.R.C.S.

SURGICAL REGISTRAR (resident or non-resident, sleeping in on duty nights), Hackney Hospital, Homerton High-street, E.9. Recognised for F.R.C.S.

ORTHOPÆDIC REGISTRAR (non-resident), Prince of Wales's General and St. Ann's Hospitals, Tottenham, N.15.

Appointment subject to review after 1 year.

Application forms from Secretary, 11A, Portland-place, W.1, to be returned by 14th September, 1957.

NORTH MIDDLESEX HOSPITAL, Edmonton, N.18. RESIDENT HOUSE ANÆSTHETIST (House Officer), required for 8th October, 1957. 6 months appointment. Post recognised for D.A. and F.F.A.R.C.S. Whole-time duties under supervision of Senior Anæsthetists.

Applications, stating age, nationality, qualifications, experience, with copies of recent testimonials, to Secretary of Hospital, by 10th September, 1957.

NORTH MIDDLESEX HOSPITAL, Edmonton, N.18. Locum REGISTRAR in Medicine (general) required for indefinite period, starting 26th September. Higher qualification in medicine desirable. Non-resident, but required to sleep in on full duty nights (7 in 21).

Applications, with full particulars, and copies of testimonials or names of referees, to Secretary of Hospital.

NORTH MIDDLESEX HOSPITAL, Edmonton, N.18. Locum REGISTRAR in Surgery required from 20th September to 5th October. Candidates should hold higher qualification and must have had considerable experience in emergency general surgery. Further details on request.

Applications, with full particulars, and copies of testimonials or names of 2 referees, to Secretary of Hospital.

NORTH MIDDLESEX HOSPITAL, Edmonton, N.18. Locum REGISTRAR for Thoracic Surgical Unit, required from 23rd September to 23rd October. Higher qualification in surgery desirable but not essential. All types of tuberculous and non-tuberculous surgery.

Applications, with full particulars, and copies of testimonials or names of 2 referees, to Secretary of Hospital.

PLAISTOW HOSPITAL, Samson-street, London, E.13. (189 Beds.) Applications are invited for the appointment of RESIDENT HOUSE OFFICER (post-registration or pre-registration second post), for 6 months commencing 1st October, in the Chest Unit and Infectious Diseases Unit. Some experience in diseases of the chest desirable. The position offers good opportunities for experience in general medicine.

Applications, with copies of recent testimonials, to Hospital Secretary by 11th September.

ST. STEPHEN'S HOSPITAL, Chelsea, S.W.10. Senior HOUSE PHYSICIAN (Senior House Officer), general medicine. Some teaching. Immediate vacancy.

Applications, naming 2 referees, to the Medical Superintendent.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, E.15. JUNIOR CASUALTY OFFICER (House Officer third post) required for 6 months commencing as soon as possible.

Applications, with the names of 3 referees, to Hospital Secretary by 13th September, 1957.

ROYAL FREE HOSPITAL GROUP. Applications are invited for the post of RESIDENT PATHOLOGIST (House Officer), vacant 1st October, 1957, from registered Men and Women practitioners. The post is for 6 months, renewable for a further 6 months. Salary and conditions of service in accordance with the scale laid down by the Ministry of Health for House Officers.

Application forms may be obtained from the Secretary, Royal Free Hospital, Gray's Inn-road, W.C.1, to whom they should be returned not later than 21st September, 1957.

ROYAL MASONIC HOSPITAL, Ravenscourt Park, London, W.6. Applications are invited for the post of RESIDENT SURGICAL REGISTRAR. Appointment about 1st October, 1957. Gross salary: first year £935 (residential emoluments of £130 deductible); second year £1061 10s. (residential emoluments of £145 deductible).

Please state age, qualifications, past and present appointments and include 2 recent testimonials and/or the names of 2 referees. Applications should reach the undersigned (from whom further information may be obtained) as soon as possible, and in any event not later than 14th September, 1957.

R. E. LAWSON, Secretary and House Governor.

ST. ANDREW'S HOSPITAL, Devons-road, Bow, E.3. HOUSE PHYSICIAN. Recognised pre-registration appointment.

Applications, with copy of at least 1 testimonial, should be sent to Hospital Secretary immediately.

ST. GEORGE'S HOSPITAL, S.W.1. Applications are invited for the post of REGISTRAR to the Department of Psychiatry. The inpatient work of the Department is at the Atkinson Morley's Hospital, and the outpatient work at St. George's Hospital. The appointment is for 1 year in the first instance and the successful candidate will be required to take up duty as soon as possible after 1st October, 1957.

Applications, stating age, education, qualifications, experience and the names of 2 referees, should reach the undersigned not later than 14th September, 1957.

P. H. CONSTABLE, House Governor.

ST. JAMES' HOSPITAL, Balham, London, S.W.12. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. WANDSWORTH HOSPITAL GROUP. ANÆSTHETIC REGISTRAR. Post recognised for D.A. and F.F.A.R.C.S. Vacant 19th October.

Application forms, obtainable from Group Secretary, at above address, to be returned by 18th September. (0391.)

ST. JAMES' HOSPITAL, Balham, London, S.W.12. Locum ANÆSTHETIC REGISTRAR required from 1st October, pending filling of vacancy.

Applications, stating age, qualifications, experience, and names of 2 referees, to Group Secretary at above address. (0392.)

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Lisle-street, Leicester-square, London, W.C.2. Applications are invited for the appointment of Whole-time REGISTRAR. Possession of a higher qualification desirable. Vacant 1st January, 1958.

Applications, stating age, qualifications and experience, with names of 3 referees, to the Secretary to the Board by 21st September, 1957.

ST. NICHOLAS HOSPITAL, Tewson-road, Plumstead, S.E.18. HOUSE PHYSICIAN. Vacant mid-September. Recognised for pre-registration purposes.

Apply to Group Secretary, Memorial Hospital, Woolwich, S.E.18.

ST. OLAVE'S HOSPITAL, Lower-road, Rotherhithe, S.E.16. BERMONDSEY AND SOUTHWARK GROUP HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (orthopædics and general surgery) required at above Hospital. Salary £819 10s. p.a., less appropriate deduction for board and lodging. The appointment is tenable for 6 months, is renewable, and may be either fully resident or resident only when on duty.

Applications, stating age, qualifications and experience together with names of 3 referees or copy testimonials, to Hospital Secretary at above address within 1 week of advert.

THORPE COOMBE MATERNITY HOSPITAL, Walthamstow, E.17. (58 Beds.) Applications are invited from medical Women for the post of JUNIOR OBSTETRIC OFFICER (graded House Officer) vacant 22nd October, 1957. The Hospital is recognised by the Royal College of Obstetricians and Gynæcologists.

Applications, with full details and copies of 2 recent testimonials, should be sent immediately to Secretary, Hospital Management Committee, Forest Group, Langthorne-road, E.11.

UNIVERSITY COLLEGE HOSPITAL, Gower-street, W.C.1. Applications are invited for the post of CANCER REGISTRAR for 1 year in the first instance from a date to be arranged. Candidates may apply to the Secretary for further details of the appointment.

Applications, with names of 2 referees, to Administrator and Secretary by 14th September, 1957.

UNIVERSITY COLLEGE HOSPITAL, Gower-street, W.C.1. Applications are invited for the post of NON-RESIDENT SENIOR HOUSE OFFICER in the Anæsthetic Department for 6 months from 1st November, 1957.

Applications, with names of 2 referees, to Administrator and Secretary by 14th September, 1957.

WEST LONDON HOSPITAL, Hammersmith-road, W.6. RESIDENT HOUSE OFFICER (pædiatrics, E.N.T., ophthalmic, dermatology and dental) required mid-October.

Applications, stating age, qualifications, experience, copies of 2 recent testimonials, to Secretary by 9th September.

WEST LONDON HOSPITAL, Hammersmith-road, W.6. RESIDENT HOUSE SURGEON (general and gynæcological) required on 1st October. Pre-registration candidates considered.

Applications, stating age, qualifications, experience, copies of 2 recent testimonials, to Secretary by 9th September, 1957.

WEST LONDON HOSPITAL, Hammersmith-road, W.6. Whole-time NON-RESIDENT REGISTRAR (general surgery) required 1st November.

Applications, stating age, qualifications, experience, names of 2 referees, to Secretary, Board of Governors, The Hammersmith, West London and St. Mark's Hospitals, Ducane-road, London, W.12, by 14th September.

WESTMINSTER HOSPITAL, St. John's-gardens, S.W.1, and KINGSTON HOSPITAL, 26, Wolverton-avenue, KINGSTON-ON-THAMES, SURREY. Applications invited for the joint appointment of SENIOR ANÆSTHETICS REGISTRAR to start 1st November, 1957. Appointment for 1 year in first instance. Candidates must hold F.F.A.R.C.S.

Applications (14 copies), with names of 3 referees, to reach House Governor, Westminster Hospital, by 14th September.

WIMBLEDON HOSPITAL, Thurstan-road, Copse Hill, S.W.20. RESIDENT HOUSE SURGEON (not pre-registration), vacant 1st October. Salary £577 10s.

Applications, giving age, qualifications, &c., and names and addresses of 2 referees, to the Secretary at above address.

ABERDEEN GENERAL HOSPITALS BOARD OF MANAGEMENT. Applications are invited for the post of REGISTRAR in General Medicine at the Aberdeen Royal Infirmary, with duties in other hospitals. The post is a whole-time one, and the salary and conditions of service are in accordance with the terms issued by the Department of Health for Scotland.

Applications, giving details of qualifications and experience, with the names of 2 referees, should be lodged with the Group Secretary and Treasurer, Aberdeen General Hospitals, P.O. Box No. 92, 62, Queen's-road, Aberdeen, within 14 days of the appearance of this advertisement.

ABERYSTWYTH, CARDIGANSHIRE. GENERAL HOSPITAL. SENIOR HOUSE OFFICER (surgical) required (resident). Post recognised for F.R.C.S. examination. Vacancy from 1st October, 1957.

Applications, stating age and experience, &c., to the Group Secretary, Mid-Wales Hospital Management Committee, 31, North-parade, Aberystwyth, Cards.

ALTON GENERAL HOSPITAL, Alton. (136 Beds.) SENIOR HOUSE OFFICER (medical). Post vacant 1st October, 1957. Resident. Candidates should have some experience of anæsthetics. Post recognised for D.A. There are 2 other resident Senior House Officers and 1 full-time Consultant Surgeon on the staff.

Applications, stating age, qualifications, and experience, together with copies of 2 testimonials, to the Hospital Secretary.

ASHFORD HOSPITAL, Ashford, Middlesex. (560 Beds.) STAINES GROUP HOSPITAL MANAGEMENT COMMITTEE. Required, RESIDENT HOUSE PHYSICIAN for general medical duties. 6 months appointment vacant 1st October, 1957. Preference given to pre-registration candidates.

Applications, stating age, qualifications and experience, with copies of up to 3 recent testimonials, to Medical Director of Ashford Hospital, Ashford, Middlesex.

AYLESBURY, BUCKINGHAMSHIRE. STOKE MANDEVILLE HOSPITAL. (619 Beds.) Applications are invited for the post of RESIDENT HOUSE PHYSICIAN in the Department of Medicine. Pre-registration post but registered practitioners may apply. Duties include responsibility for 20 acute medical beds and 15 tuberculosis beds. Post vacant 18th September, 1957.

Applications, with copies of 2 testimonials, to the Administrative Officer.

BARNSLEY. BECKETT HOSPITAL. (174 Beds. Recognised for the F.R.C.S.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time REGISTRAR (orthopædics) required on 8th November. Married accommodation available. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 9th September, 1957, giving age, nationality, qualifications, present and previous appointments with dates naming 3 referees.

BARNSTAPLE. NORTH DEVON INFIRMARY. (105 Beds.) HOUSE PHYSICIAN required, recognised pre-registration appointment.

Applications to Group Secretary, 19, Alexandra-road, Barnstaple.

BARNSTAPLE. NORTH DEVON INFIRMARY. (105 Beds.) HOUSE SURGEON (pre-registration) required. Post vacant 4th September, 1957.

Applications to Group Secretary, North Devon Hospital Management Committee, 19, Alexandra-road, Barnstaple.

BATLEY, YORKSHIRE. THE GENERAL HOSPITAL. Applications are invited for the post of HOUSE SURGEON (ophthalmic and general surgery), resident. The Hospital has 99 Beds, which are allocated to the specialties of general surgery, E.N.T., orthopædic and ophthalmology.

Apply in writing to the Administrative Officer enclosing copies of 2 testimonials.

BEVERLEY, YORKSHIRE. WESTWOOD HOSPITAL. (229 Beds.) Locum HOUSE SURGEON (Senior House Officer or House Officer grading according to experience).

Applications to Group Secretary.

BEVERLEY, YORKSHIRE. WESTWOOD HOSPITAL. (229 acute beds.) HOUSE SURGEON (first, second or third post). General surgical duties, some orthopædics. Offering good opportunities for general experience in busy acute general hospital. Recognised for F.R.C.S. Approved pre-registration post. Married quarters may be available.

Applications to Group Secretary.

BEVERLEY, YORKSHIRE. WESTWOOD HOSPITAL. (229 acute beds.) ORTHOPÆDIC HOUSE SURGEON (first, second or third post), vacant now. Offers good opportunity for general experience in busy acute general hospital. Approved pre-registration post. Fully qualified practitioners may apply. Recognised for F.R.C.S.

Apply Group Secretary.

BENENDEN CHEST HOSPITAL (Civil Service Sanatorium Society), BENENDEN, near CRANBROOK, KENT. SENIOR HOUSE OFFICER (resident). Vacancy in mid-September, 1957. Applications are invited from registered medical practitioners, Male or Female. Salary £650 p.a. (10% increase not yet added but under review) with free board and lodgings. The Hospital is independent of the National Health Service. Superannuation scheme in operation. This chest hospital of 169 Beds is fully equipped for the treatment, including regular major thoracic surgery, of adult male and female patients with pulmonary disease, tuberculous and non-tuberculous.

Applications, stating age, qualifications, previous experience, with copies of testimonials, should be sent to the Chief Medical Officer as soon as possible.

BISHOP AUCKLAND, co. DURHAM. THE GENERAL HOSPITAL. (350 Beds.) SOUTH WEST DURHAM HOSPITAL MANAGEMENT COMMITTEE. HOUSE SURGEON required. Recognised pre-registration appointment.

Apply, naming 2 referees, to K. G. T. LUXFORD, Group Secretary, at the above address.

BISHOP'S STORTFORD, HERTFORDSHIRE. HERTS AND ESSEX GENERAL HOSPITAL. (400 Beds.) Applications are invited for the post of HOUSE OFFICER (surgical), pre-registration. Salary £467 10s.–£522 10s. p.a., less £125 in respect of residential emoluments. Appointment to commence immediately. There is a pre-registration medical post for which the successful candidate will receive consideration at the termination of the surgical appointment.

Applications, stating age, nationality, qualifications, and experience, with copies of 2 recent testimonials or the names of referees, to the Hospital Secretary.

BIRMINGHAM, 18. DUDLEY ROAD HOSPITAL. E.N.T. DEPARTMENT. HOUSE SURGEON (resident). Recognised for D.L.O. Busy hospital with 780 Beds with approximately 50 E.N.T. beds. Candidates with previous experience in E.N.T. work considered for appointment as Senior House Officer.

Applications, with copies of 2 recent testimonials, to the Group Secretary.

BIRMINGHAM, 18. DUDLEY ROAD HOSPITAL. (780 Beds.) SENIOR HOUSE OFFICER (anæsthetics), resident. Recognised for D.A. and F.F.A.R.C.S. Extensive experience of anæsthetics not necessary. Duties include list and emergency work in general surgery, gynæcology, obstetrics and E.N.T. at hospitals in the Group.

Detailed applications, with copies of 3 recent testimonials, to the Group Secretary.

BIRMINGHAM, 9. LITTLE BROMWICH GENERAL HOSPITAL. RESIDENT MEDICAL OFFICER in Infectious Diseases (Senior House Officer grade). Hospital serves a wide area, gives opportunities for the study of infectious diseases, and has a poliomyelitis respiratory unit. Part of the Hospital is being developed as a General Hospital, where further experience can be gained.

Apply Physician-Superintendent with 2 testimonials.

BIRMINGHAM. MOSELEY HALL HOSPITAL FOR CHILDREN, Alcester-road, BIRMINGHAM, 13. (65 Beds.) SENIOR HOUSE OFFICER (pædiatric), now vacant. Resident/non-resident. Recognised for D.C.H.

Apply immediately with 3 testimonials to Secretary, Birmingham (Selly Oak) Hospital Management Committee, Oak Tree-lane, Birmingham, 29.

BIRMINGHAM. ROYAL ORTHOPÆDIC HOSPITAL. Locum REGISTRAR (orthopædics), resident or non-resident, required immediately until mid-October, 1957. Salary £19 5s. per week.

Application forms from Secretary, Selly Oak Hospital Management Committee, Oak Tree-lane, Birmingham, 29, to be returned by 9th September, 1957.

BIRMINGHAM. THE SKIN HOSPITAL, INPATIENTS' DEPARTMENT, George-road, BIRMINGHAM, 15. SENIOR HOUSE OFFICER or HOUSE OFFICER (resident) required. Modern well-equipped Inpatients' Department, providing facilities for study of skin diseases. Required to assist Consultant at outpatients clinics.

Applications, with copies of 2 recent testimonials, to Group Secretary, Dudley Road Hospital, Birmingham, 18.

BIRMINGHAM. THE UNITED BIRMINGHAM HOSPITALS AND THE BIRMINGHAM REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of SENIOR REGISTRAR in Anæsthetics (non-resident). In this post facilities will be available for training and experience in anæsthesia for neurosurgery, plastic surgery, and thoracic surgery, in addition to general anæsthetic duties. Time will be equally divided between the 2 Boards.

Neurosurgery and general anæsthetic duties in the Queen Elizabeth Hospital and other hospitals of the Teaching Group.

Thoracic Surgery at Yardley Green Hospital and other hospitals in the Regional Thoracic Service.

General anæsthetic duties at Little Bromwich Hospital, which is a centre for the treatment of poliomyelitis cases with respiratory involvement, and other regional hospitals.

Possession of the 2-part Diploma in Anæsthetics of the Conjoint Examining Board of England or the Diploma of Fellow of the Faculty of Anæsthetists of the Royal College of Surgeons of England would be desirable.

Application forms may be obtained from the Secretary, United Birmingham Hospitals, Queen Elizabeth Hospital, Birmingham, 15, and should be returned to him not later than 14th September, 1957.

BIRMINGHAM REGIONAL HOSPITAL BOARD.

(1) Shrewsbury Group, Royal Salop Infirmary, Shrewsbury

(*a*) REGISTRAR (surgery). Duties mainly at Royal Salop Infirmary and Copthorne Hospital (170 surgical beds). Experience specialty essential. Higher qualification desirable. Hospital recognised F.R.C.S. Resident or non-resident.

(*b*) REGISTRAR (radiology) (radiodiagnosis) for Shrewsbury Group and Robert Jones and Agnes Hunt Orthopædic Hospital. Resident or non-resident.

(2) South Warwickshire Group, 50, Holly-walk, Leamington Spa

REGISTRAR (orthopædics). Duties mainly at Warwick Hospital (320 Beds including 52 orthopædic). Married accommodation available. Post recognised for F.R.C.S. Experience specialty essential. Higher qualification an advantage.

(3) Wolverhampton Group, The Royal Hospital, Wolverhampton

REGISTRAR (anæsthetics). Duties mainly at Royal (310 Beds) and New Cross (630 Beds) Hospitals. Post recognised for F.F.A.R.C.S./D.A.

Application forms from Group Secretaries to be returned by 9th September, 1957.

BOLTON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. RESIDENT ANÆSTHETIST (Senior House Officer grade). Main duties at Bolton District General Hospital and Bolton Royal Infirmary. Vacant mid-September, tenable for 12 months and recognised for the D.A. and F.F.A.R.C.S.

Applications, stating age, nationality, qualifications, experience, and the names of 2 referees, to Group Secretary, The Royal Infirmary, Bolton.

BOLTON. THE ROYAL INFIRMARY. (238 Beds.) SENIOR HOUSE OFFICER for Casualty Department with some orthopædic duties. Recognised for F.R.C.S. Resident or non-resident. Staff of 2 with Consultant supervision and adequate relief. Post offers good casualty/accident experience.

Applications, with the names of 2 referees, to Group Secretary, Bolton and District Hospital Management Committee, The Royal Infirmary, Bolton.

BOURNEMOUTH. ROYAL VICTORIA HOSPITAL, Shelley-road. (494 Beds.) BOURNEMOUTH AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the appointment of GENERAL HOUSE SURGEON. The appointment, which becomes vacant on 7th October, 1957, is recognised for the F.R.C.S. examination and for pre-registration purposes.

Applications to the Hospital Secretary.

BRIGHTON. ROYAL SUSSEX COUNTY HOSPITAL. (312 Beds.)

2 HOUSE PHYSICIANS end of September and October. Pre-registration.

2 HOUSE SURGEONS beginning and end of October. Pre-registration and recognised for F.R.C.S.

Applications, stating usual particulars, and naming 2 referees, to the Administrative Officer, Royal Sussex County Hospital, Brighton, 7.

BURTON-ON-TRENT. THE GENERAL HOSPITAL. HOUSE SURGEON (general and pre-registration) required at the above Hospital as from 1st September, 1957. Post recognised for F.R.C.S.

Applications to Group Secretary as soon as possible.

BURTON-ON-TRENT. GENERAL HOSPITAL. Junior HOSPITAL MEDICAL OFFICER ANÆSTHETIST required at the above Hospital.

Applications to Group Secretary, General Hospital, Burton-on-Trent, as soon as possible.

BURY GENERAL HOSPITAL. Bury and Rossendale HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER in Pædiatrics. The post is based upon Bury General Hospital but the successful applicant will also have duties at other hospitals in the Group. It is recognised for the examination for the D.C.H.

Apply, stating full details and names of 2 referees, to H. WILKINSON, Group Secretary, Bury General Hospital, Bury, Lancs, not later than 12th September, 1957.

CARDIFF. ST. DAVID'S HOSPITAL. Senior House OFFICER required for Accident Unit at above Hospital.

Form of application from Group Secretary, Cardiff Hospital Management Committee, 44, Cathedral-road, Cardiff.

CARDIFF. THE UNITED CARDIFF HOSPITALS. Applications are invited for the appointment of SENIOR HOUSE OFFICER in Anæsthetics. Non-resident post, to commence 1st November. Appointment based at the Cardiff Royal Infirmary, but will include duties at other hospitals in the area.

Application forms are available from the Secretary to the Board at the Cardiff Royal Infirmary, Newport-road, Cardiff, and should be returned within 14 days of the appearance of this advertisement.

CARSHALTON, SURREY. ST. HELIER HOSPITAL. Locum ANÆSTHETIC REGISTRAR required 9th–15th September inclusive.

Apply immediately to Group Secretary.

CAERPHILLY HOSPITAL. (226 Beds for acute general medicine and surgery.) Pre-registration HOUSE OFFICER (orthopædics and general surgery) required at above Hospital.

Apply immediately, with names of referees, to the Group Secretary, Rhymney and Sirhowy Valleys Hospital Management Committee, Central Offices, Caerphilly-road, Ystrad Mynach, Glam.

CARLUKE, LANARKSHIRE. LAW HOSPITAL. Applications are invited for the post of SENIOR HOUSE OFFICER (medical).

Applications, stating age, qualifications and previous experience, together with the names of 2 referees, should be submitted to the Group Medical Superintendent, Law Hospital, Carluke.

CARLUKE, LANARKSHIRE. LAW HOSPITAL. Applications are invited for the following resident posts (pre- or post-registration) for the 6 months commencing immediately.

HOUSE OFFICER (orthopædic).

HOUSE OFFICER (surgical).

Applications, stating age, qualifications and previous experience, together with the names of 2 referees, should be submitted to the Group Medical Superintendent, Law Hospital, Carluke.

CANTERBURY. KENT AND CANTERBURY HOSPITAL. (277 Beds.) PÆDIATRIC HOUSE PHYSICIAN. This post, recognised for D.C.H., includes work in the ward and Outpatient Department and also provides experience in the care of the newborn. Opportunities exist for the study of preventive medicine among children and child guidance work. Post vacant end of September, 1957. National Health Service salary and conditions.

Applications, together with copies of 2 testimonials, to be addressed to the Hospital Secretary at the above Hospital.

CAMBRIDGE. ADDENBROOKE'S HOSPITAL. House OFFICER to Departments of Dermatology, Ophthalmology and Pædiatrics for 6 months from 17th October. Recognised Pre-registration Service (medical).

Apply, stating age, nationality, qualifications and experience with dates, and copies of 3 testimonials, to the Secretary by 14th September. Interviews end September.

CHELMSFORD. ST. JOHN'S HOSPITAL. Resident Locum Tenens REGISTRAR in Obstetrics and Gynæcology required to work at above Hospital from 14th September for 3 weeks.

Applications to Secretary, Chelmsford Hospital Management Committee, London-road, Chelmsford, Essex.

CHERTSEY, SURREY. ST. PETER'S HOSPITAL (late Botley's Park War Hospital). (430 Beds.) Locum SENIOR HOUSE OFFICER ANÆSTHETIST required from 31st August, 1957, to 13th September, 1957.

Applications to Physician-Superintendent, St. Peter's Hospital, as soon as possible.

CHESTERFIELD ROYAL HOSPITAL. Casualty Officer (House Officer or Senior House Officer) required 30th September, 1957. Post recognised for the F.R.C.S. and pre-registration purposes.

Apply, with copies of 2 testimonials, to—

M. H. BOONE, Group Secretary.

COLCHESTER GROUP HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for following posts :—

Essex County Hospital, Colchester, Essex (185 Beds)

HOUSE OFFICER (surgical). First, second, third or pre-registration post, tenable for 6 months. Recognised for F.R.C.S.

SENIOR HOUSE OFFICER to Casualty and E.N.T. Departments. Post tenable for 6 months or 1 year. Recognised for F.R.C.S.

Black Notley Hospital, Braintree, Essex (516 Beds)

HOUSE OFFICER (orthopædic surgery). Duties include care of cases from London Hospital Orthopædic Department. First, second, third or pre-registration post, tenable for 6 months. Recognised for F.R.C.S.

Locum ORTHOPÆDIC REGISTRAR with some duties at the London Hospital required immediately to 6th October.

Applications, with copies of 3 testimonials, to Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

COLCHESTER. ESSEX COUNTY HOSPITAL. (185 Beds.) Applications invited for post of SENIOR HOUSE OFFICER to Casualty and Radiotherapy Departments. Post tenable for 6 months or 1 year. Recognised for F.R.C.S.

Applications, with copies of 3 testimonials, to Group Secretary, Colchester Hospital Management Committee, 14, Pope's-lane, Colchester, Essex.

CUCKFIELD HOSPITAL, Cuckfield, near Haywards HEATH, SUSSEX. MID-SUSSEX HOSPITAL MANAGEMENT COMMITTEE. RESIDENT SENIOR HOUSE SURGEON. Post vacant 15th September, 1957, tenable 6 or 12 months.

Applications, giving age, nationality, qualifications and experience, and names of 2 referees, to Group Secretary.

DERBY. DERBYSHIRE ROYAL INFIRMARY. (416 Beds.) HOUSE SURGEON (pre-registration) or SENIOR HOUSE OFFICER (general surgery), vacant mid-September. Recognised for F.R.C.S. if held by Senior House Officer.

Apply immediately, stating full details with copies of 2 recent testimonials, to Secretary.

DERBY. DERBYSHIRE ROYAL INFIRMARY. (416 Beds. Recognised for training for F.R.C.S.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT REGISTRAR (orthopædics) required. Post vacant 1st October. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 9th September, 1957, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

DEVIZES, WILTSHIRE. ROUNDWAY HOSPITAL. (For Nervous and Mental Diseases—1306 Beds.) Applications are invited for the appointment, for a temporary period of 2 months, of Locum Tenens JUNIOR HOSPITAL MEDICAL OFFICER for duty at the above Mental Hospital. All forms of modern treatment available. Salary £19 5s. per week. Single accommodation available for which a charge at the rate of £170 p.a. will be made.

Applications, giving names and addresses of 2 referees, to the Physician-Superintendent as soon as possible.

DONCASTER ROYAL INFIRMARY. Doncaster HosPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER in Ophthalmology. Recognised for D.O. Post vacant on or about 1st October.

Applications, with particulars of experience and copies of 2 recent testimonials, to the Group Secretary at Doncaster Royal Infirmary.

DEWSBURY, YORKSHIRE. STAINCLIFFE GENERAL HOSPITAL. (311 Beds.) Applications are invited for the post of RESIDENT MEDICAL OFFICER (Junior Hospital Medical Officer grade) which becomes vacant on 1st October, 1957. The appointment is tenable for 1 year in the first instance. The Hospital has an acute Medical Unit of 70 Beds. There are 2 House Physicians. Temporary accommodation for an officer who is married could be made available if required.

Applications, giving full details and the names of 3 referees, should be made to the Administrative Officer at the Hospital as soon as possible.

EAST ANGLIAN REGIONAL HOSPITAL BOARD. ORTHOPÆDIC REGISTRAR, King's Lynn Hospital Group. Main hospitals, West Norfolk and King's Lynn General and St. James's Hospital, King's Lynn. Appointment for 1 year, renewable for second year. Candidates invited to visit hospitals by direct arrangement with Hospital Management Committee Secretary, St. James's Hospital, King's Lynn.

SURGICAL REGISTRAR, Peterborough Memorial Hospital. Appointment for 1 year, renewable for second year. Provides wide range of work and experience. 6 months of tenure recognised for F.R.C.S. Candidates are invited to visit the Hospital by direct arrangement with the Hospital Management Committee Secretary at the Hospital.

Applications, stating age, experience and the names of 3 referees, to Board's Senior Administrative Medical Officer, 117, Chesterton-road, Cambridge, by 9th September, 1957.

EAST ANGLIAN REGIONAL HOSPITAL BOARD. SENIOR REGISTRAR in Psychiatry, Suffolk Mental Hospitals. St. Clement's Hospital, Ipswich (440 Beds) and St. Audry's Hospital, Melton, near Woodbridge (1150 Beds), and associated General Hospital outpatient clinics. There is a very active Outpatient Department and Electro-encephalographic Department at St. Clement's Hospital. Trainee post. Both hospitals are recognised for the D.P.M. Married accommodation available.

Applications, stating age, experience, and names of 3 referees, to Board's Senior Administrative Medical Officer, 117, Chesterton-road, Cambridge, by 9th September, 1957. Candidates invited to visit the hospitals by direct arrangement with Medical Superintendent, St. Audrey's Hospital.

EDGWARE GENERAL HOSPITAL. (715 Beds.) REGISTRAR (whole-time), resident, required in Department of Anæsthesia at above Hospital. Hospital may be visited by direct appointment with Medical Director.

Application forms obtainable from, and returnable to, Group Secretary, Hendon Group Hospital Management Committee, Edgware General Hospital, Edgware, Middlesex, by 10th September, 1957.

EDGWARE GENERAL HOSPITAL, Edgware, Middlesex. RESIDENT HOUSE SURGEON for above Hospital. Post vacant 30th September, 1957. 6 months appointment. Recognised for F.R.C.S. and pre-registration purposes.

Applications, stating age, qualifications, experience and enclosing copies of up to 3 recent testimonials, to Medical Director of Hospital by 14th September, 1957.

EDINBURGH. WESTERN GENERAL HOSPITAL. Applications are invited for the post of JUNIOR HOUSE OFFICER in the Gastro-Intestinal Unit commencing on 1st October, 1957. (This post may be regarded either as a surgical or medical post for pre-registration purposes.) The appointment may interest those seeking a higher diploma.

Applications, giving the names of 2 referees, to the Medical Superintendent, Western General Hospital, Edinburgh.

ENFIELD, MIDDLESEX. CHASE FARM HOSPITAL. ENFIELD GROUP HOSPITAL MANAGEMENT COMMITTEE. RESIDENT OBSTETRICAL AND GYNÆCOLOGICAL HOUSE SURGEON (second post, pre-registration), required 22nd October, 1957. 6 months appointment. Post recognised for D.Obst.R.C.O.G. examination. Unit also recognised for M.R.C.O.G. examination.

Applications, with names of 2 referees, to the Group Secretary at Chase Farm Hospital, Enfield, by 13th September, 1957.

ENFIELD, MIDDLESEX. CHASE FARM HOSPITAL. ENFIELD GROUP HOSPITAL MANAGEMENT COMMITTEE. RESIDENT HOUSE SURGEON (pre-registration post), vacant 30th September, 1957. Duties with General Surgical Unit, doing some genito-urinary work. Post recognised by the Royal College of Surgeons. 6 months appointment.

Applications, with the names and addresses of 2 referees, to the Group Secretary at Chase Farm Hospital.

ENFIELD. WAR MEMORIAL HOSPITAL, Chase Side, ENFIELD, MIDDLESEX. ENFIELD GROUP HOSPITAL MANAGEMENT COMMITTEE. RESIDENT SENIOR HOUSE OFFICER required immediately for general medical and surgical duties in acute general hospital of 61 Beds. 12 months appointment.

Applications, with names and addresses of 2 referees, to the Group Secretary, Chase Farm Hospital, The Ridgeway, Enfield, Middlesex.

EPPING. ST. MARGARET'S HOSPITAL. Resident SENIOR HOUSE OFFICER (surgery), vacant 1st October, 1957. Post recognised for F.R.C.S. Busy general hospital with easy access to London.

Applications, with copies of 2 testimonials, to reach the Group Secretary, Epping Group Hospital Management Committee, "Oak Cottage," The Plain, Epping, Essex, by 13th September, 1957.

GLASGOW, N.1. STOBHILL GENERAL HOSPITAL. Applications are invited for the post of JUNIOR HOSPITAL MEDICAL OFFICER in the acute Geriatric Unit (70 beds—for assessment and rehabilitation) supervised by a Consultant Physician specialising in geriatrics. The appointment offers excellent clinical experience in the diagnosis and treatment of acute and other illnesses in the elderly and will be for 2 years in the first instance.

Applications, stating age, qualifications and experience with the names of 2 referees, to be sent to the Medical Superintendent.

FARNBOROUGH HOSPITAL, Kent. (800 Beds.) ORTHOPÆDIC SENIOR HOUSE OFFICER required for 1 year from 26th September. Recognised for F.R.C.S.

Apply, stating age, qualifications with dates, and experience, and naming 3 referees, to Administrative Officer.

GRIMSBY GENERAL HOSPITAL. Applications are invited for CASUALTY OFFICER (Senior House Officer grade) with some E.N.T. duties. Post vacant mid-September. Up-to-date Medical Library and reading facilities available.

Applications, with names and addresses of 2 referees, to Hospital Secretary.

GRIMSBY GENERAL HOSPITAL. Grimsby Hospital MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER (orthopædic). Orthopædic Unit of 71 Beds. Resident establishment—Registrar and 2 House Officers. Up-to-date Medical Library and reading facilities available.

Applications, with names of 2 referees, to Hospital Secretary.

HALIFAX. NORTHOWRAM HALL HOSPITAL. (108 Beds.) SENIOR HOUSE OFFICER in Chest Diseases required. Post vacant 8th September, 1957. Duties include attendance at busy chest clinic at the Royal Halifax Infirmary and non-tuberculosis chest ward work. This post offers excellent facilities for a study of chest diseases and experience is available with bronchoscopies and bronchograms. Salary £819 10s. p.a., with a deduction of £150 p.a. for board-residence, &c.

Applications to be forwarded to the Group Secretary, Royal Halifax Infirmary, Halifax.

HAYWARDS HEATH. HURSTWOOD PARK HOSPITAL. Locum REGISTRAR in Medical and Surgical Neurology (mainly surgical) (resident) required as soon as possible. Salary in accordance with the Whitley Council scale.

Applications as soon as possible to be sent to the Group Secretary, Hurstwood Park Hospital, Haywards Heath, Sussex.

HAYWARDS HEATH, SUSSEX. ST. FRANCIS AND HURSTWOOD PARK HOSPITALS. SOUTH EAST METROPOLITAN REGIONAL HOSPITAL BOARD. PSYCHIATRIC REGISTRAR required at above Mental Hospital and Neuropsychiatric Unit. In addition to the neurological and psychiatric facilities of these hospitals, trainees may attend the practice of the Mental Health Department in Brighton, the Brighton Observation Ward, and the Brighton Child Guidance and Adult Outpatient Clinics. Married and single accommodation available. The appointment will be in accordance with the terms and conditions of service of hospital medical and dental staffs (England and Wales), and will be for 1 year in the first instance.

Applications, giving particulars of age, qualifications and experience with relevant dates, together with the names and addresses of 2 referees, to be sent to the Secretary, Registrars Committee, 11, Portland-place, W.1, not later than 14th September, 1957.

HEREFORD. GENERAL HOSPITAL. (154 Beds.) HOUSE OFFICER (general surgery) required, pre-registration post. Hospital recognised by R.C.S. Duties include care of general surgical beds and in addition for 3 months of orthopædic beds and for 3 months of E.N.T. beds.

Applications, with copies of 2 testimonials, to be sent to the Group Secretary, Victoria House, Eign-street, Hereford.

HERTFORD COUNTY HOSPITAL. (173 Beds. Hospital situated 21 miles from London.) RESIDENT CASUALTY OFFICER (Senior House Officer grade) with attachment to Pædiatrician and Ophthalmic Consultant. Salary £819 10s. p.a., less £150 p.a. residential emoluments. Recognised under F.R.C.S. regulations. Appointment to commence 21st September, 1957.

Apply, with full details and references, to Group Secretary, Hertford Hospital Management Committee, County Hospital, Hertford, Herts.

HEXHAM, NORTHUMBERLAND. WOOLEY SANA-TORIUM. JUNIOR RESIDENT MEDICAL OFFICER, to commence duty on 1st October, 1957. The grading is Junior Hospital Medical Officer and is suitable for, and preference will be given to, someone who has suffered from tuberculosis. A detached house, as married accommodation, is available.

Applications to the Medical Superintendent.

HILLINGDON HOSPITAL, Uxbridge, Middlesex. (621 Beds.) HOUSE SURGEON required for Ophthalmic and E.N.T. Departments.

Apply, stating age, qualifications, nationality and experience, together with copies of not more than 3 recent testimonials, to Medical Director by 10th September.

HOVE GENERAL HOSPITAL, Sussex. (75 Beds. 3 Resi-dent Medical Officers.) Pre-registration HOUSE SURGEON (with casualty duties) required from 24th September, 1957, for 6 months. This post, which is recognised for F.R.C.S., provides a wide experience in an active surgical unit. Salary £467 10s.–£577 10s., less £125 p.a. for residential emoluments.

Applications, stating age, qualifications, full details of experience, together with names and addresses of 2 referees, to the Administrative Officer.

HUDDERSFIELD ROYAL INFIRMARY. (285 Beds.) HUDDERSFIELD HOSPITAL MANAGEMENT COMMITTEE. HOUSE SURGEON required to commence duty on 14th September, 1957. The post is recognised as a pre-registration appointment and for the F.R.C.S. Salary in accordance with national scale.

Applications, together with copies of 3 recent testimonials, to be addressed to the undersigned as soon as possible.

H. J. JOHNSON, Secretary to the Management Committee.

The Royal Infirmary, Huddersfield.

HULL. KINGSTON GENERAL HOSPITAL. (419 Beds.) HULL A GROUP HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE SURGEON (recognised for the F.R.C.S. examinations). There are 69 general surgical beds and some supervision is required of 17 gynæcological beds. Salary £819 10s., less emoluments. Post vacant 1st October, 1957.

Applications, with 2 recent testimonials, to the Hospital Secretary.

HULL. VICTORIA HOSPITAL FOR SICK CHILDREN, Park-street, HULL. Locum HOUSE SURGEON required from 26th August to 22nd September, inclusive.

Replies to be addressed to the Hospital Secretary.

IPSWICH AND EAST SUFFOLK HOSPITAL. Heath ROAD WING, IPSWICH. (280 Beds.) Post of HOUSE PHYSICIAN (pre-registration), vacant 17th October, 1957.

Applications, stating qualifications, age, nationality, &c., with copies of 3 recent testimonials, to Hospital Secretary.

IPSWICH AND EAST SUFFOLK HOSPITAL. Anglesea ROAD WING. (356 Beds.) Applications are invited for the post of SENIOR HOUSE SURGEON to the Fracture and Orthopædic Department. The post is graded Senior House Officer and is recognised for the F.R.C.S. examinations. The Department has 2 Consultants, about 60 Beds and a large outpatient attendance; it offers wide experience.

Applications, stating age, nationality and experience, together with copies of recent testimonials, to the Hospital Secretary.

IPSWICH AND EAST SUFFOLK HOSPITAL. Anglesea ROAD WING. (356 Beds.) Applications are invited for the post of HOUSE SURGEON to the E.N.T. and Ophthalmic Departments. The post is recognised for pre-registration and for the D.L.O. examination.

Applications, giving full particulars and copies of recent testimonials, to Hospital Secretary.

IPSWICH AND EAST SUFFOLK HOSPITAL. Anglesea ROAD WING. (356 Beds.) Applications are invited for the post of HOUSE SURGEON to the Fracture and Orthopædic Department. Approved pre-registration post.

Applications, with copies of recent testimonials, to the Hospital Secretary.

IRVINE. AYRSHIRE CENTRAL HOSPITAL. Junior HOSPITAL MEDICAL OFFICER vacancy on 1st October, 1957, in the Infectious Diseases Unit of the above Hospital.

Applications, stating age, qualifications, experience, and giving the names of 2 referees, to the Consultant Physician, Infectious Diseases Unit, Ayrshire Central Hospital, Irvine.

ISLE OF MAN. BALLAMONA HOSPITAL. Applications are invited for the post of SENIOR HOUSE OFFICER at the above Mental Hospital (360 Beds, admission-rate 200 annually), which undertakes all modern methods in the treatment of mental and nervous diseases as well as mental deficiency, and is recognised for training for the Conjoint D.P.M. A choice of 2 furnished flats is available. The terms and conditions of service are those of the Isle of Man Health Service the same as those of the National Health Service. Superannuation is transferable. The Hospital may be visited by appointment.

Those interested should write for further details; and applications, stating age, nationality, qualifications and experience, together with the names of 2 referees, should be sent to the Medical Superintendent.

KETTERING AND DISTRICT HOSPITAL MANAGE- MENT COMMITTEE. Applications are invited from registered medical practitioners for the appointment of SENIOR HOUSE OFFICER to the Geriatric Unit in this area. There are 160 active geriatric beds in the Unit in 3 hospitals. Post vacant 1st September, 1957. Residential accommodation available. National scale of salary.

Applications, together with the names and addresses of 2 referees, to the Group Secretary, Central Administration Offices, General Hospital, Kettering.

KETTERING GENERAL HOSPITAL, Kettering. (130 Beds.) KETTERING AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered medical practitioners for the appointment of SENIOR HOUSE OFFICER in Anæsthetics. Post vacant now. Post recognised for D.A.

Applications, giving details of qualifications and experience, and enclosing copies of 3 recent testimonials, to be sent to the Group Secretary at the above address.

KING'S LYNN. WEST NORFOLK AND KING'S LYNN GENERAL HOSPITAL. (146 Beds.) KING'S LYNN AREA HOSPITALS MANAGEMENT COMMITTEE. Applications are invited for the post of RESIDENT SENIOR HOUSE OFFICER (medicine). Appointment for 1 year in the first instance, post vacant now. Post offers valuable and varied experience in acute and chronic medical wards. The medical team consists of Consultant, Senior House Officer and 2 House Physicians.

Applications, with names and addresses of 2 referees, to be forwarded as soon as possible to the Group Secretary of the above Committee, St. James' Hospital, Exton's-road, King's Lynn, Norfolk.

LANCASTER. BEAUMONT HOSPITAL. Resident SENIOR HOUSE OFFICER (E.N.T.) for a newly constructed self-contained Ward and Theatre Unit, with attendance at Outpatients at Lancaster, Kendal and Morecambe.

Applications, with names of 2 referees, to Group Secretary, Royal Lancaster Infirmary, Lancaster.

LANCASTER MOOR HOSPITAL, Lancaster. Regional Mental Hospital. Applications are invited for the post of RESIDENT JUNIOR HOSPITAL MEDICAL OFFICER (Male or Female). Unfurnished house available; furnished quarters for married couple (without children) or single person. Hospital recognised for D.P.M. and facilities granted for attending neighbouring universities. All modern methods of investigation and treatment carried out. Hospital serving N. Lancashire and Lake District. Post for initial period of 4 years but renewable if services satisfactory.

Apply Medical Superintendent.

LEEDS. THE UNITED LEEDS HOSPITALS. The GENERAL INFIRMARY AT LEEDS. REGISTRAR in Anæsthetics required for duties in the Teaching Hospital Group. Terms and conditions of service for hospital medical staff apply.

Applications, stating age, qualifications, experience with relevant dates, and giving 3 names for reference, should be forwarded to the Sub-Dean, the Medical School, Leeds, 2, not later than 6th September, 1957.

LEEDS. THE UNITED LEEDS HOSPITALS. The GENERAL INFIRMARY AT LEEDS. SENIOR HOUSE OFFICER in E.N.T. Department required for a period of 6 months. Post vacant mid-September. Terms and conditions of service for hospital medical staff apply.

Applications, giving details of age, qualifications, posts held with dates, and 3 names for reference, should be sent to the Secretary to the Board as soon as possible.

LEEDS REGIONAL HOSPITAL BOARD in association with the University of Leeds invites applications for the post of RESEARCH REGISTRAR in Rheumatism to assist the Professor of Clinical Medicine with research projects at the Royal Bath Hospital, Harrogate, which is the centre for the Regional Rheumatism Scheme, or elsewhere in the Region.

Applications, stating age, sex, qualifications, and details of present and previous appointments with dates, together with the names and addresses of 3 referees, to the Secretary to the Joint Registrars Committee, Park-parade, Harrogate, not later than 5th September, 1957.

LEEDS REGIONAL HOSPITAL BOARD. Registrar vacancies.

Chest Diseases

Scotton Banks Sanatorium, Knaresborough (200 staffed beds). Visiting staff includes Teaching Hospital Consultants. Resident.

General Medicine

St. Luke's Hospital, Bradford (170 general medical beds). Non-resident.

Infectious Diseases

Leeds Road Hospital, Bradford (160 infectious diseases beds). Resident.

Ophthalmology

Huddersfield Group (23 eye beds and 1500 new outpatients annually). Non-resident.

Applications, stating age, qualifications and details of present and previous appointments with dates, together with the names and addresses of 3 referees, to the Secretary, Joint Registrars Committee, Park-parade, Harrogate, by 5th September, 1957.

LEAMINGTON SPA. WARNEFORD GENERAL HOS- PITAL. (197 Beds.) RESIDENT HOUSE SURGEON (general surgery). Post vacant 8th October, 1957. Recognised for pre-registration and F.R.C.S. Post provides excellent experience. Good accommodation available.

Applications, with 2 recent testimonials, to Hospital Secretary.

LEICESTER ISOLATION HOSPITAL AND CHEST UNIT, Groby-road, LEICESTER. (328 Beds.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT MEDICAL REGISTRAR (chest and infectious diseases) required. Single accommodation available. Acute pyrexial conditions, tuberculosis and all forms of chest and heart diseases. Hospital has complete Thoracic Surgical Unit with medical and surgical outpatient clinics. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, 10, by 9th September, 1957, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

LIVERPOOL, 20. BOOTLE HOSPITAL. Applications invited for post of CASUALTY OFFICER (Junior Hospital Medical Officer grade). Recognised for F.R.C.S.

Apply to Secretary, Walton Hospital, Liverpool, 9, giving details and names of 2 referees.

LUTON AND DUNSTABLE HOSPITAL, Luton, Bedford- SHIRE. Locum ANÆSTHETIC REGISTRAR required from 16th September, 1957, until permanent appointment is made.

Applications, giving full particulars and names of referees, to Secretary, Luton and Dunstable Hospital, Luton, Beds.

LUTON AND DUNSTABLE HOSPITAL (250 Beds), AND ASSOCIATED UNITS (134 Beds). NORTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. ANÆSTHETIC REGISTRAR (resident or non-resident) required at the above Hospital, for a 1-year or 2-year appointment. Post recognised for D.A. and F.F.A.R.C.S., and vacant 16th September. The Hospital may be visited by direct appointment.

Application forms obtainable from the Secretary, Luton and Hitchin Group Hospital Management Committee, St. Mary's Hospital, Luton, and returnable by 14th September, 1957.

MAIDSTONE. PRESTON HALL HOSPITAL, British LEGION VILLAGE, MAIDSTONE, KENT. Applications are invited for the post of SENIOR HOUSE OFFICER at the above Hospital, which contains 330 Beds for treatment of pulmonary tuberculosis and other chest diseases and includes a major Thoracic Surgical Unit. Candidates should have had experience in general medicine and in the treatment of pulmonary tuberculosis in adults. Salary £819 10s. p.a., national scale and conditions.

Applications, stating age, qualifications and experience, with relevant dates, together with names and addresses of 2 referees, to be sent to the Group Secretary, by 21st September, 1957.

MANCHESTER, 20. CHRISTIE HOSPITAL AND HOLT RADIUM INSTITUTE. SOUTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. Applications are invited from registered practitioners for the post of ASSISTANT RESIDENT SURGICAL OFFICER (Senior House Officer grade). The post provides experience in the treatment of tumours and good opportunity for study.

Applications with full details, including the names of 2 referees, to be forwarded to the Group Secretary, Withington Hospital, Manchester, 20, immediately.

MANCHESTER REGIONAL HOSPITAL BOARD. Senior REGISTRAR in E.N.T. Surgery in the South Manchester Group of hospitals, mainly at Wythenshawe Hospital, the Manchester Ear Hospital and the Manchester Hearing Aid Clinic. It is expected that the person appointed will later transfer to the United Manchester Hospitals (Manchester Royal Infirmary, &c.).

Application forms, obtainable from the Senior Administrative Medical Officer of the Board, Cheetwood-road, Manchester, 8, should be returned by 16th September, 1957.

MANCHESTER REGIONAL HOSPITAL BOARD. South MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. The Board invite applications from registered medical practitioners for the post of REGISTRAR in Plastic Surgery. The duties are largely at the main Plastic Unit at Wythenshawe Hospital, which is a general hospital with 71 plastic surgery beds. In addition the holder of this post attends other hospitals where plastic surgery is carried out under the direction of the Consultants.

Applications, stating age, qualifications, present post, and experience, together with the names of 2 referees, to the Group Secretary, Withington Hospital, Manchester, 20, immediately.

MANCHESTER. SOUTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR HOUSE OFFICER (anæsthetics) with duties in the South Manchester Group. This post is recognised by the Royal College of Surgeons for the F.F.A.R.C.S. and for the D.A.

Applications, stating age, present post, experience, and the names of 2 referees, to be forwarded immediately to the Group Secretary, Withington Hospital, Manchester, 20.

MANCHESTER. WEST MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. PARK HOSPITAL, DAVYHULME. (General Hospital—433 Beds.) JUNIOR HOUSE OFFICER (pædiatrics) required, immediately. Post-registration. There is a Midwifery Unit of 73 Beds and a Pædiatric Unit which includes 10 thoracic surgical beds. Recognised for D.C.H.

Application forms from Secretary.

MANCHESTER. WEST MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. PARK HOSPITAL, DAVYHULME. (General Hospital—433 Beds.) HOUSE OFFICER (general surgery) required. Pre-registration. Post recognised for F.R.C.S. examination. Post now vacant.

Application form from Secretary.

MANCHESTER, 20. WITHINGTON HOSPITAL. South MANCHESTER HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE OFFICER (orthopædics) required at the above Hospital, vacant early October, 1957. This post offers excellent experience for persons who ultimately intend to specialise in orthopædic and accident work. In addition to the routine orthopædic duties of a general hospital the unit carries out the reconstructive surgical programme of patients from the Devonshire Royal Hospital, Buxton, which has a regional catchment area.

Applications, with full details and the names of 2 referees, to be forwarded to the Group Secretary, Withington Hospital, as soon as possible.

NEWCASTLE GENERAL HOSPITAL. (848 Beds.) Department of Obstetrics and Gynæcology (100 beds). OBSTETRICAL AND GYNÆCOLOGICAL HOUSE SURGEON. Resident, vacant 1st November, 1957. The post is recognised for the purpose of Pre-registration Service and preference will be given to provisionally registered applicants who have served 6 months in a medical or surgical post since qualification. The department is recognised for the diploma of M.R.C.O.G. and D.Obst.R.C.O.G., and undertakes the training of Medical Students in the University of Durham.

Applications should be addressed to the Secretary, Newcastle General Hospital, Westgate-road, Newcastle upon Tyne, 4, together with the names and addresses of 2 referees.

NEWCASTLE REGIONAL HOSPITAL BOARD.

REGISTRAR OBSTETRICIAN AND GYNÆCOLOGIST (whole-time), Tees-side Group of hospitals. Main hospital Middlesbrough Maternity (80 Beds). Post affords good obstetrical and gynæcological experience. Single accommodation available.

REGISTRAR ANÆSTHETIST (whole-time) for Sunderland Group of hospitals. Single or married accommodation available. Post recognised for F.F.A.R.C.S.

Applications, with names and addresses of 3 referees, to Senior Administrative Medical Officer, Regional Hospital Board, Benfield-road, Newcastle upon Tyne, 6, within 14 days.

NEWCASTLE REGIONAL HOSPITAL BOARD. Senior REGISTRAR THORACIC SURGEON (whole-time), resident on emergency duty, at Regional Thoracic Centre (150 Beds), Shotley Bridge General Hospital, where work almost entirely non-tuberculosis (cardiovascular, œsophageal and pulmonary), and at associated sanatoria. Applicants should have had good experience in general surgery, as well as experience in chest surgery, and hold a higher qualification.

Applications, with names and addresses of 3 referees, to Senior Administrative Medical Officer, Regional Hospital Board, Benfield-road, Newcastle upon Tyne, 6, within 28 days.

NEWCASTLE. THE UNITED NEWCASTLE UPON TYNE HOSPITALS. Applications are invited for the whole-time appointment of SENIOR HOUSE OFFICER in the Department of Radiology (Diagnostic). The appointment which is tenable at the Royal Victoria Infirmary is for 1 year, at the end of which it is expected that the appointee will have secured Part I of the D.M.R.(D.). He/she will then be eligible for an appointment as Registrar in the Department of Radiology (Diagnostic).

Applications, giving full details and the names and addresses of 3 referees, should be sent to the undersigned within 2 weeks of the appearance of this advertisement.

A. W. SANDERSON, House Governor and Secretary.

Royal Victoria Infirmary, Newcastle upon Tyne.

NORTHAMPTON (near). CREATON HOSPITAL. (138 Beds.) Applications are invited for the posts of SENIOR HOUSE OFFICER and HOUSE OFFICER. The House Officer post is recognised as a pre-registration medical appointment. The Hospital is for the treatment of both pulmonary and non-pulmonary tuberculosis. There is a modern major Thoracic Surgical Unit for tuberculous and non-tuberculous diseases of the chest.

Applications, stating age, experience and qualifications, together with the names and addresses of 2 referees, should be sent to the Secretary, Northampton and District Hospital Management Committee, General Hospital, Northampton.

NORTHAMPTON GENERAL HOSPITAL. (482 Beds.) Vacancies 1st October, 1957, for the following :—

HOUSE OFFICER (Fracture and Orthopædic Department). Recognised for F.R.C.S.

SENIOR HOUSE OFFICER (general surgery), with some duties at Northampton General Hospital but mostly for General Surgical Unit at Manfield Orthopædic Hospital.

Posts of House Officer General Surgery and House Officer Fracture and Orthopædic Department recognised for pre-registration. 6 months appointments in first instance.

Applications as soon as possible to S. G. HILL, Superintendent.

NEWMARKET GENERAL HOSPITAL, Suffolk. Applications are invited for the post of SENIOR HOUSE OFFICER (obstetrics (14 Beds) and gynæcology (10 Beds)), with opportunity for gaining experience in general surgery. The post is a resident one and vacant 21st September, 1957. Salary £819 10s. p.a., less emoluments.

Applications, giving age, nationality, and qualifications, together with copies of 3 recent testimonials, to be addressed to the Medical Superintendent.

NEWTON ABBOT HOSPITAL, S. Devon. Senior House OFFICER (medicine), Male or Female, required approximately 1st October, 1957. Duties divided equally between 20 acute medical beds in General Section and 140 geriatric beds. This Officer is also required to stand in when Senior House Surgeon otherwise engaged. Married quarters available.

Applications, stating qualifications, nationality, age, with copy testimonials, to be sent to the Group Secretary, Torquay District Hospital Management Committee, Torbay Hospital, Torquay, S. Devon.

NEWTON ABBOT HOSPITAL. (General Section—85 Beds.) RESIDENT SENIOR HOUSE SURGEON (Male or Female), required mid-September, 1957. Married quarters available.

Applications (quoting Ref. F.364/39), stating qualifications, nationality, age, with copy testimonials, to be sent to the Group Secretary, Torquay District Hospital Management Committee, Torbay Hospital, Torquay, S. Devon.

NOTTINGHAM GENERAL HOSPITAL. A Senior HOUSE OFFICER (orthopædic and fracture) required 30th September. Post offers exceptional experience in traumatic surgery.

Applications, stating age, qualifications, experience, nationality together with copies of testimonials, to be sent to Group Secretary.

ORPINGTON HOSPITAL, Orpington, Kent. Resident SENIOR HOUSE PHYSICIAN (Male or Female) for Geriatric Department. Post offers good clinical experience and opportunity for higher studies. Hospital may be visited by appointment.

Applications, with copies 2 recent testimonials, to Physician-Superintendent.

OXFORD. UNITED OXFORD HOSPITALS. Applications invited for non-resident post of REGISTRAR in General Medicine. For 1 year in the first instance, eligible for extension to second year.

Applications, on forms obtainable from the Administrator, Radcliffe Infirmary, Oxford, should be received by him not later than 14th September, 1957.

OXFORD. UNITED OXFORD HOSPITALS. Applications are invited for 3 posts of NON-RESIDENT REGISTRAR in the Department of Anæsthetics, with effect from 1st November, 1st December, 1957, and 1st January, 1958, for 1 year in the first instance, eligible to an extension for a second year.

Applications, on forms obtainable from the Administrator, Radcliffe Infirmary, Oxford, should be received not later than 7th September, 1957.

OXFORD. UNITED OXFORD HOSPITALS. Applications are invited for the post of RESIDENT JUNIOR PATHOLOGIST for 6 months at the Radcliffe Infirmary, Oxford. The post is graded at Senior House Officer rate, £819 10s. p.a., and will be vacant with effect from 1st October, 1957.

Applications, stating age, qualifications and experience, together with the names of 2 referees, to the Administrator, Radcliffe Infirmary, Oxford, as soon as possible.

POOLE GENERAL HOSPITAL, Dorset. Bournemouth AND EAST DORSET HOSPITAL MANAGEMENT COMMITTEE. Locum CASUALTY OFFICER (Senior House Officer) required, for period 16th–29th September, 1957.

Applications, with 2 recent testimonials, to the Hospital Secretary.

PORTLAND HOSPITAL, Portland, Dorset. House SURGEON required at the above Hospital, formerly The Royal Naval Hospital. The post is resident and tenable for 6 months from 1st October, 1957.

Applications, stating age, qualifications, experience and nationality, together with copies of testimonials, to the Group Secretary, West Dorset Hospital Management Committee, Damers-road, Dorchester, Dorset, immediately.

PORT TALBOT GENERAL HOSPITAL, Hospital-road, PORT TALBOT. (85 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER (general surgery). The successful applicant will work under the supervision of the Consultant Surgeon based at Neath General Hospital, Neath.

Applications, naming 2 referees, to be addressed to the Group Secretary, Mid-Glamorgan Hospital Management Committee, 8, Wind-street, Neath.

ROTHERHAM. MOORGATE GENERAL HOSPITAL. (355 Beds. Recognised for the F.R.C.S.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time RESIDENT SURGICAL REGISTRAR required on 1st October. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 9th September, 1957, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

READING AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of RESIDENT SENIOR HOUSE OFFICER (area Accident and Orthopædic Department), vacant immediately. Recognised for F.R.C.S. Duties including work in area Casualty Department at Battle Hospital, Reading, (300 Beds). Person appointed will work with Registrar and House Officers.

Apply, stating nationality, present post, and qualifications with dates, together with names of 2 referees, to Group Secretary, 3, Craven-road, Reading.

REDHILL. EAST SURREY HOSPITAL, Shrewsbury-road, REDHILL, SURREY. HOUSE SURGEON (Male). Pre-registration appointment, prospect of House Physician appointment to follow. Post vacant 12th September.

Apply to the Hospital Secretary.

ROCHDALE INFIRMARY. Rochdale and District Hos-PITAL MANAGEMENT COMMITTEE. CASUALTY OFFICER (Senior House Officer grade), resident, required. Duties include some general surgical work. Recognised for 6 months F.R.C.S. experience.

Apply at once to Group Secretary, Central Offices, Birch Hill Hospital, Rochdale.

ROCHDALE INFIRMARY. Rochdale and District Hos-PITAL MANAGEMENT COMMITTEE. HOUSE SURGEON (resident) required. Pre- or post-registration Doctors eligible for this post, which is recognised for 6 months F.R.C.S. experience.

Apply at once to Group Secretary, Central Offices, Birch Hill Hospital, Rochdale.

ROCHESTER, KENT. ST. BARTHOLOMEW'S HOS-PITAL. (201 Beds.) MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE. Locum SURGICAL REGISTRAR required until permanent appointment made. Salary £19 5s. per week. Accommodation may be available for a married man in a furnished flat.

Applications to Group Secretary, 20, Star-hill, Rochester, Kent.

ROMFORD, ESSEX. OLDCHURCH HOSPITAL. (722 Beds.) SENIOR HOUSE OFFICER (ophthalmology).

Applications should be addressed immediately to the Group Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

ROMFORD, ESSEX. VICTORIA HOSPITAL. (99 Beds.) RESIDENT HOUSE SURGEON (Male) required immediately. (Not pre-registration appointment.)

Applications should be forwarded to the Secretary, Romford Group Hospital Management Committee, Oldchurch Hospital, Romford.

SALISBURY GENERAL HOSPITAL. Salisbury Group HOSPITAL MANAGEMENT COMMITTEE. Locum REGISTRAR or SENIOR HOUSE OFFICER required immediately for Orthopædic Department.

Apply, naming 2 referees, to Group Secretary, Odstock Hospital, Salisbury, as soon as possible.

SALISBURY GENERAL HOSPITAL. Salisbury Group HOSPITAL MANAGEMENT COMMITTEE. Applications are invited for the post of SENIOR RESIDENT HOUSE SURGEON or RESIDENT HOUSE SURGEON which is now vacant. The appointment is also recognised for pre-registration candidates. The Department has over 50 Beds and a large outpatient turnover, dealing with fractures and all types of orthopædic surgery.

Applications, stating age, nationality, qualifications and experience, and naming 2 referees, to the Group Secretary, Odstock Hospital, Salisbury.

SALISBURY GENERAL HOSPITAL. Salisbury Group HOSPITAL MANAGEMENT COMMITTEE. SOUTH WEST METROPOLITAN REGIONAL HOSPITAL BOARD. Applications are invited for the appointment of MEDICAL REGISTRAR at above Hospital with effect from 5th November, 1957.

Further details and application forms obtainable from, and should be returned to, Group Secretary, Odstock Hospital, Salisbury, within 10 days of the appearance of this advertisement.

SCOTLAND. NORTH-EASTERN REGIONAL HOS-PITAL BOARD. Applications are invited for the post of SENIOR REGISTRAR in Ophthalmology on the staff of the Aberdeen General Hospitals. Candidates preferably should hold a higher qualification in ophthalmology. Terms and conditions are as laid down for Hospital Medical and Dental Staffs (Scotland).

Applications, together with the names of 2 referees, should be lodged by 12th September, 1957, with the Secretary, 1, Albyn-place, Aberdeen, from whom further particulars may be obtained.

SCOTLAND. SOUTH-EASTERN REGIONAL HOS-PITAL BOARD. REGISTRAR at Dingleton Mental Hospital, Melrose. During the tenure of the post opportunities for interchange of duty and training at other centres in the Region may be available under the joint training scheme of the South-Eastern Regional Hospital Board and the Department of Psychological Medicine of the University of Edinburgh. A house is available.

Apply, giving particulars of age, qualifications and previous experience, and the names of 2 referees, to the Secretary, 11, Drumsheugh-gardens, Edinburgh, 3, by 28th September.

SCOTLAND. SOUTH-EASTERN REGIONAL HOS-PITAL BOARD. Applications are invited from suitably qualified persons for the post of MEDICAL OFFICER on the Board's Headquarters staff at a salary of £1415 (at age 33 or over)–50(4)–65(1)–£1680 p.a. The successful applicant will be required to undertake duties under the direction of the Senior Administrative Medical Officer in the medical administration of the hospital and specialist services of the Region. The appointment will be whole-time and subject to the approved Whitley Council Conditions.

Applications, stating age, qualifications, and details of present and previous appointments with dates, and names and addresses of 3 referees, to the Secretary, 11, Drumsheugh-gardens, Edinburgh, by 21st September, 1957.

SHEFFIELD. CITY GENERAL HOSPITAL. (852 Beds. Recognised for training for F.R.C.S. examination.) SHEFFIELD REGIONAL HOSPITAL BOARD. Whole-time NON-RESIDENT REGISTRAR (casualty and orthopædic duties) required immediately. Appointment for 1 year in first instance.

Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood-road, Sheffield, by 9th September, 1957, giving age, nationality, qualifications, present and previous appointments with dates, naming 3 referees.

SHEFFIELD. THE UNITED SHEFFIELD HOSPITALS. ROYAL INFIRMARY AND CHILDREN'S HOSPITAL UNITS. Applications invited for the post of REGISTRAR to the E.N.T. Departments at the above hospitals.

Applications, stating age, qualifications, and experience, with the names of 3 referees, should be sent not later than 9th September, 1957, to the Chief Administrative Officer, The United Sheffield Hospitals, West-street, Sheffield, 1.

SHEFFIELD. THE UNITED SHEFFIELD HOSPITALS. JESSOP HOSPITAL FOR WOMEN. RESIDENT PATHOLOGIST (Senior House Officer) required from 1st October. The appointment forms part of a training scheme for candidates for the M.R.C.O.G. examination. If eligible, the holder will be able to apply for transfer to a clinical appointment in the Hospital in due course.

Applications, with 3 recent testimonials, to be sent at once to the Superintendent, Jessop Hospital for Women, Leavygreave-road, Sheffield, 3.

SHREWSBURY HOSPITAL GROUP. Locum Anæs-THETIC REGISTRAR required for month of September. Salary £19 5s. per week.

Applications to Group Secretary, Royal Salop Infirmary, Shrewsbury.

SHREWSBURY. ROYAL SALOP INFIRMARY/COP-THORNE HOSPITAL. (500 Beds.) SHREWSBURY HOSPITAL GROUP. HOUSE SURGEON, vacant 1st November, 1957. Pre-registration candidates eligible. Recognised for the F.R.C.S.

Applications with copy testimonials, to Group Secretary, Royal Salop Infirmary, Shrewsbury.

SHREWSBURY. ROYAL SALOP INFIRMARY AND COPTHORNE HOSPITAL. (500 Beds.) RESIDENT ANÆSTHETIST (Senior House Officer). Post recognised for F.F.A.R.C.S. Registrar also employed. Vacant mid-September.

Applications and copy testimonials to Group Secretary, Shrewsbury Hospital Group, Royal Salop Infirmary, Shrewsbury.

SHOTLEY BRIDGE GENERAL HOSPITAL, Shotley BRIDGE, CONSETT, co. DURHAM. REGIONAL THORACIC UNIT (150 Beds. Mainly non-tuberculous). RESIDENT MEDICAL OFFICER (House Officer or Senior House Officer grading) required as soon as possible. Work concerned with the pre- and post-operative management and investigation of pulmonary, cardiovascular and œsophageal cases but duties include some surgical work.

Applications, stating age, qualifications, experience, and enclosing copies of 2 recent testimonials, to the Group Secretary.

SLOUGH, BUCKINGHAMSHIRE. UPTON HOSPITAL. SENIOR HOUSE OFFICER (casualty) required, working with Casualty Registrar in busy department. Post vacant 3rd October. Experience given in plastic and orthopædic cases.

Applications, with names of 2 referees, to Secretary, by 10th September.

SOUTHAMPTON. ROYAL SOUTH HANTS HOSPITAL. (274 Beds. Recognised for F.R.C.S.) ORTHOPÆDIC HOUSE SURGEON (post recognised for Pre-registration Service and tenable for 6 months) and SENIOR HOUSE OFFICER (orthopædic). The Hospital is the centre to which all trauma from a large industrial town and port is directed thus providing excellent experience in the treatment of traumatic conditions; patients with orthopædic conditions are also drawn from a wide area.

Applications, with copies of testimonials, should be sent as soon as possible to the Group Secretary, Southampton Group Hospital Management Committee, Bullar-street, Southampton.

SOUTH EAST METROPOLITAN REGIONAL HOS-PITAL BOARD. Applications are invited for a whole-time appointment as RESIDENT SURGICAL OFFICER to fill a vacancy in the approved establishment at the Dartford Group of hospitals. Duties will be mainly at Joyce Green Hospital, Dartford, and also West Hill Hospital, Dartford, Kent. The salary will be £1061 10s. p.a. and the appointment will be in accordance with the terms and conditions of service of hospital medical and dental staffs (England and Wales), and will be for 1 year in the first instance, renewable for a further year.

Applications, giving particulars of age, qualifications and experience, with relevant dates, together with the names and addresses of 2 referees, to be sent to the Secretary, Registrars Committee, South East Metropolitan Regional Hospital Board, 11, Portland-place, London, W.1, not later than 14th September, 1957.

STOCKPORT AND BUXTON HOSPITAL MANAGE-MENT COMMITTEE. Applications are invited for the following posts, which are approved for pre-registration purposes.

Stockport Infirmary (163 Beds)

HOUSE OFFICER (general surgery and gynæcology). Recognised for the F.R.C.S. Vacant now.

HOUSE OFFICER (general surgery and ophthalmology). Recognised for the F.R.C.S. and D.O.M.S. Vacant 11th September, 1957.

Applications, with copies of 2 testimonials, to the Group Secretary, 59B, Shaw-heath, Stockport.

STOCKPORT. CHERRY TREE HOSPITAL. (Isolation —96 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER.

Applications, stating age, experience, and qualifications, together with copies of 2 testimonials, to be addressed to the Secretary, Stockport and Buxton Hospital Management Committee, 59B, Shaw-heath, Stockport.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. HOUSE OFFICER (pædiatrics) required, vacant 17th September, 1957. Pre-registration post. Recognised for D.C.H.

Detailed applications, with copy testimonials, to Group Secretary, Princes-road, Stoke-on-Trent.

STOKE-ON-TRENT. CITY GENERAL HOSPITAL. (815 Beds.) HOUSE OFFICER (general surgery) required, vacant end August. Pre-registration post. Hospital recognised for F.R.C.S.

Detailed applications, with copy testimonials, to Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

STOKE-ON-TRENT. HAYWOOD HOSPITAL. (96 Beds.) RESIDENT MEDICAL OFFICER (Junior Hospital Medical Officer) required. Combined duties on surgical and medical wards.

Applications, with copy testimonials, to Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent, as soon as possible.

STOKE-ON-TRENT. NORTH STAFFORDSHIRE ROYAL INFIRMARY. HOUSE PHYSICIAN required, pre-registration post, vacant early October.

Detailed applications, with copy testimonials, to Group Secretary, Hospital Management Committee, Princes-road, Stoke-on-Trent.

ST. HELENS AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. ST. HELENS HOSPITAL. (196 Beds.) Applications are invited for the post of RESIDENT HOUSE SURGEON, which becomes vacant from 1st September, 1957. The post is recognised for Pre-registration Service and for the F.R.C.S. examination. The appointment will be made in the Senior House Officer grade in the case of a candidate who has already held 2 pre-registration posts.

Applications, stating age, date of qualification, and experience, and giving 2 names for reference, should be forwarded to N. RICHARDS, Group Secretary, Whiston Hospital, Prescot, Lancs, immediately.

SUTTON AND CHEAM HOSPITAL, Cotswold-road, SUTTON, SURREY. (146 Beds.) SURGICAL REGISTRAR. Candidates may visit Hospital by prior arrangement with Secretary (Tel. : Vig. 8691).

Forms of application, returnable by 14th September, obtainable from the Group Secretary, St. Helier Hospital, Carshalton, Surrey.

SWINDON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE. ST. MARGARET'S HOSPITAL, STRATTON. Applications invited for the post of RESIDENT SENIOR HOUSE OFFICER for Pædiatric Unit. Post recognised for D.C.H., permits time for postgraduate study ; vacant 6th October.

Full details, with names of 3 referees, to Secretary, 7, Okus-road, Swindon, Wilts, as soon as possible.

TORQUAY. TORBAY HOSPITAL. Resident Senior HOUSE OFFICER (surgery) required mid-September, 1957. Post recognised for F.R.C.S. There is a complement of 6 Resident House Officers.

Applications, stating qualifications, age, nationality, with copy testimonials (quoting Ref. F.955/83), to the Group Secretary, Torquay District Hospital Management Committee, Torbay Hospital, Torquay, S. Devon.

WAKEFIELD. PINDERFIELDS GENERAL HOSPITAL. SENIOR HOUSE OFFICER required for the Orthopædic Department. Salary £819 10s. p.a., £150 p.a. charged for accommodation.

Address written applications, giving full particulars of experience and 2 names and addresses for reference, to—

W. BOWRING, Group Secretary.

Pinderfields General Hospital, Wakefield.

WARRINGTON GENERAL HOSPITAL. (344 Beds.) Applications are invited for the post of SENIOR HOUSE OFFICER (pædiatrics), Male or Female. Post recognised for D.C.H. The post will become vacant on 1st October, 1957. Scale of salary £819 10s. p.a., less a deduction of £150 p.a. for residential emoluments.

Applications to be forwarded to—

HENRY L. BOOT, Group Secretary,
Warrington and District Hospital Management Committee.
c/o General Hospital, Warrington, Lancs.

WARWICK (near). KING EDWARD VII MEMORIAL CHEST HOSPITAL, HERTFORD HILL, near WARWICK. (228 Beds.) JUNIOR HOSPITAL MEDICAL OFFICER (resident). Applications invited for this appointment in modern Thoracic Surgical Unit. All forms of major and minor thoracic surgery undertaken. Post offers wide general training in cardiac, œsophageal and pulmonary surgery. Facilities available for postgraduate study. Previous experience in specialty not essential.

Applications to Medical Superintendent.

WATFORD. SHRODELLS HOSPITAL. Applications are invited for the post of GYNÆCOLOGICAL HOUSE OFFICER (Junior Hospital Medical Officer grade) required to start early October. Post recognised for the M.R.C.O.G.

Applications, together with copies of 2 testimonials, should reach the Medical Administrator as soon as possible.

WIGAN (near). BILLINGE HOSPITAL. Registrar in Psychiatry. The post offers good experience under Consultant Psychiatrist. Main centre at Billinge Hospital where there is an active psychiatric unit with modern treatment and over 300 admissions annually. Post recognised for D.P.M.

Applications, with names of 2 referees, to Secretary, Wigan and Leigh Hospital Management Committee, Knowsley House, Wigan.

WELSH REGIONAL HOSPITAL BOARD. Whole-time Locum Tenens REGISTRAR in General Surgery required Caerphilly District Miners' Hospital immediately for approximately 3 months.

Applications, naming 2 referees, to Senior Administrative Medical Officer, Temple of Peace, Cathays Park, Cardiff.

WEST MALLING, KENT. LEYBOURNE GRANGE COLONY. Required, Locum Tenens JUNIOR HOSPITAL MEDICAL OFFICER immediately. Appointment for 1 month in the first instance. Residential accommodation available.

Applications to Group Secretary as soon as possible.

WINDYGATES, FIFE. FIFE DISTRICT LABORATORY. EAST FIFE HOSPITALS BOARD OF MANAGEMENT. REGISTRAR in Clinical Pathology at the above Laboratory, vacant on 1st October, 1957. Experience provided in all branches of pathology with opportunities for additional work in bacteriology and biochemistry. Previous experience in morbid anatomy desirable.

Apply, giving particulars of age, qualifications, and previous experience, and the names of 2 referees, to the Secretary and Treasurer, East Fife Hospitals Board of Management, 243A, High-street, Kirkcaldy, Fife, before 21st September, 1957.

WOKING. THE ROWLEY BRISTOW ORTHOPÆDIC HOSPITAL, PYRFORD, WOKING, SURREY. HOUSE SURGEON. Applications are invited from registered medical practitioners for 6 months appointment. Recognised for F.R.C.S. Salary £577 10s. p.a., less £125 for board, lodging, &c.

Applications, with 2 names for reference, to be sent to the Secretary.

WOLVERHAMPTON. NEW CROSS HOSPITAL. (634 Beds.) Pre-registration HOUSE OFFICER in Medicine. Vacant 1st October, 1957.

Applications to the Hospital Secretary.

WORCESTER ROYAL INFIRMARY. Locum Senior HOUSE OFFICER (medical) required for Resident Medical Officer's duties from 16th September to 4th October.

Applications to Secretary.

WORKINGTON INFIRMARY, Cumberland. (119 Beds, pre-registration post.) HOUSE PHYSICIAN (first, second or Senior House Officer post). Vacant beginning of October.

Detailed applications, with dates and names of 2 referees, to Group Secretary.

YORK A AND TADCASTER HOSPITAL MANAGEMENT COMMITTEE. YORK GERIATRIC UNIT. JUNIOR HOSPITAL MEDICAL OFFICER required for St. Mary's and associated hospitals (373 Beds in 4 hospitals). Based at St. Mary's Hospital, to work under Consultant Geriatric Physician. Accommodation available.

Applications, giving age, qualifications, experience, nationality and names of 2 referees, to Group Secretary, Bootham Park, York.

YORK. COUNTY HOSPITAL. (Acute General Hospital of 266 Beds, with full Consultant staff.) YORK A AND TADCASTER HOSPITAL MANAGEMENT COMMITTEE. SENIOR HOUSE SURGEON in Ophthalmology required from October, 1957. Recognised for F.R.C.S. and D.O.

Applications, giving age, qualifications, experience, nationality, and names of 2 referees, to Group Secretary, Bootham Park, York.

YORK. FAIRFIELD SANATORIUM (68 Beds). CITY HOSPITAL (256 Beds). Required in December, 1957, SENIOR HOUSE OFFICER in Chest Diseases and General Medicine (non-resident) to spend half time at Fairfield Sanatorium (68 beds) and at the City Hospital where 8 beds are reserved for investigation of chest cases, and where outpatient refill clinics are held, the remainder of time at the County and City Hospitals (266 and 256 beds respectively), in the Department of General Medicine. Previous experience in treatment of tuberculosis an advantage.

Applications, giving age, nationality, experience, qualifications and names of 2 referees, to Group Secretary, York A and Tadcaster Hospital Management Committee, Bootham Park, York.

B.W.I. UNIVERSITY COLLEGE HOSPITAL OF THE WEST INDIES. Applications are invited for the post of REGISTRAR in the Division of Surgery at the above-named Teaching Hospital. The successful candidate will be required to commence duty on or about 1st January, 1958. The appointment will be for 1 year in the first instance subject to renewal. Salary will be within the scale £900–£100–£1100/£1200–£100–£1500 p.a. depending on experience and qualifications. If available, an unfurnished flat will be provided at a deduction of 5% of salary, otherwise a living-out allowance will be paid by the Board. Return passages by sea will be paid for 1 person only from and to the country of recruitment.

Further information may be obtained from the Hospital Manager and Secretary, University College Hospital of the West Indies, Mona P.O., Jamaica, B.W.I., to whom application, stating age, nationality, details of qualifications and experience together with 3 recent testimonials or the names and addresses of 3 referees, should be sent by 21st September, 1957.

CANADA. ROYAL VICTORIA HOSPITAL, Montreal, CANADA. Applications for JUNIOR INTERNSHIP and RESIDENCIES for the year beginning 1st July, 1958, from residents of the British Isles will be welcomed by the above Hospital, a teaching hospital of McGill University. Each rank carries full maintenance and the following monthly stipends : Junior Interns, $40 ; Junior Assistant Residents, $60 ; Assistant Residents, $100 ; Residents, $150.

Inquiries should be directed to the Executive Director, Dr. J. GILBERT TURNER.

U.S.A. CAMBRIDGE, MASSACHUSETTS. Applications are invited for the positions of RESIDENCIES in Anesthesia for a 2-year period beginning 1st July and 1st September, 1957. Salary $1800 first year and $3600 second year and full maintenance. Training in all branches of anesthesia. Affiliation with other hospitals.

Applications, stating age, nationality, qualifications, and experience, together with the names of their referees, should be forwarded to the Director of Anesthesiology, P.O. Box 89, Cambridge, Massachusetts. Travelling expenses to and from the U.S.A. will be paid. Particulars will be sent as soon as application is received. Please enclose recent photograph with application.

Public Appointments

BRADFORD. CITY OF BRADFORD. Health Department. Applications are invited from registered medical practitioners for the appointment of ASSISTANT MEDICAL OFFICER. The successful applicant will be employed mainly on school health and maternity and child welfare work and may be required to undertake other duties from time to time as decided by the Medical Officer of Health. If the successful candidate does not possess the Diploma in Public Health he will be expected to avail himself of facilities which may be given to take the course for such Diploma on a part-time basis at Leeds University. Salary is in the scale £1050–£50–£1200–£55–£1475 according to experience, &c. The post is subject to the appropriate superannuation scheme and the successful candidate will be required to pass a medical examination.

Forms of application and further particulars may be obtained from the Medical Officer of Health, Town Hall, Bradford, and should be returned to the undersigned within 7 days of the appearance of the advertisement.

Town Hall, Bradford. W. H. LEATHEM, Town Clerk.

GOVERNMENT OF GHANA. Ministry of Health. Ghana PUBLIC SERVICE COMMISSION invites applications for the following appointments :—

(*a*) SPECIALIST RADIOLOGISTS to carry out radiological diagnosis at main hospitals. Applicants must be registered medical practitioners, possess a Diploma in Medical Radiology (D.M.R.D. or D.M.R.E.), and have at least 4 years full-time hospital experience in radiological work. Salary in consolidated scale £2400–£2700 a year. Entry point according to period of experience.

(*b*) SPECIALIST OPHTHALMOLOGIST to operate ophthalmological units in the major hospitals. Applicants must be registered medical practitioners, possess the F.R.C.S. or D.O. or D.O.M.S., and have gained 4 years' full-time hospital experience in eye diseases. Consolidated contract salary £2600 a year.

(*c*) PATHOLOGIST to carry out routine duties of clinical pathologists and post-mortem examinations. Must be a registered medical practitioner with at least 2 years full-time post-registration laboratory experience. Salary in consolidated scale £1330–£2310 a year. Entry point according to period of experience.

(*d*) 3 DENTAL SURGEONS for the treatment of dental cases. Applicants must be registered Dentists and must have spent 1 year in house posts. Salary in range £1330–£2310 a year. Entry point according to period of experience.

Appointments to above posts on contract terms for 1–2 tours of 12–24 months each with gratuity at rare of £12 10s. for each month of satisfactory service. Generous home leave. Outfit allowance on first appointment. Free first-class passages for officer, wife and 3 children up to 18 years of age. Quarters at rental of £60–£150 a year according to salary.

Further particulars and application forms obtainable from the Director of Recruitment, Ghana Office, 13, Belgrave-square, London, S.W.1.

HER MAJESTY'S OVERSEAS SERVICE. Government OF ADEN.

MEDICAL OFFICER required for general duties at hospital or elsewhere as required by Director of Medical Services.

MEDICAL OFFICER, Special grade (Surgeon), required for surgical duties mainly and a certain amount of general duty. Must possess F.R.C.S. or equivalent.

Appointment on permanent basis with pension, or short-term contract with gratuity (taxable). Candidates in National Health Service retain superannuation rights (up to 6 years) and receive a gratuity (taxable) of 20% of aggregate of salary at end of engagement. Salary scale for Medical Officer from £1305 to £2191 a year and for Medical Officer, Special Grade (Surgeon), £1497 to £2191 a year, starting-point in both scales depending upon age and experience. Pension for permanent appointment at rate of 1/600th of final pensionable emoluments for each completed month of service. Gratuity for contract appointment is £37 10s. for each completed 3 months of service. Outfit allowance £40–£60 payable on appointment. If Medical Officer, Special Grade (Surgeon), is required to work in Protectorate an allowance of £144–£192 a year (non-pensionable) is payable. Education allowance for children between 8 and 18, undergoing full-time education outside Aden, of £10 per month for first child, £8 for second, and £6 for third. Tour of service from 18 to 24 months. Generous home leave granted after each tour.

Application forms from Director of Recruitment, Colonial Office, London, S.W.1 (quoting No. BCD. 117/2/01).

HER MAJESTY'S OVERSEAS CIVIL SERVICE. Sarawak. MEDICAL OFFICER required in Sarawak for general medical duties. Candidates must possess medical qualifications registrable in United Kingdom. Appointment on permanent basis with pension (non-contributory) at age 55, or on short-term contract with gratuity (taxable) assessed at the rate of 12½% of salary including expatriation pay, for each completed period of 1 month, payable on completion of satisfactory service. Candidates from the National Health Service may retain their superannuation rights (up to 6 years) and receive a gratuity (taxable) of 20% of the aggregate of their salary at the end of their engagement. Basic salary scale ranges from $870 to $1420 a month—i.e., £1218 to £1988 a year—starting salary determined according to qualifications and experience. In addition expatriation pay (pensionable) is payable varying from £252 to £336 a year, education allowance of £140 a year for up to 2 children between ages of 15 and 17 educated outside Sarawak, and a child allowance of 7½% of basic salary (maximum £140 a year) for married officers with dependent children under age 18. Partially furnished quarters provided at low rental. Free passages provided in both directions for officer, wife, and up to 3 children, under 18 years of age. Income-tax at low local rates. Tour of service 30–36 months. Local leave permitted and generous home leave granted.

Application forms from Director of Recruitment, Colonial Office, London, S.W.1 (quoting reference No. BCD. 117/24/01).

GATESHEAD. COUNTY BOROUGH OF GATESHEAD. ASSISTANT MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER (Male). Applications are invited from duly qualified medical practitioners (Male) in possession of the D.P.H., C.P.H., or D.C.H., for the post of Assistant Medical Officer in the Public Health Department. Salary will be within the scale commencing £1050–£50–£1200–£55–£1475 p.a., having regard to the experience of the candidate in similar posts. The appointment is superannuable, subject to medical examination, and is terminable by 1 month's notice on either side.

A list of the duties of the office may be obtained from the Medical Officer of Health, Greencsfield House, Mulgrave Terrace, Gateshead, to whom applications, stating age and experience, and accompanied by not more than 3 recent testimonials, should be sent in envelopes endorsed "Assistant Medical Officer," within 14 days of the appearance of this advertisement.

C. D. JACKSON, Town Clerk.

Town Hall, Gateshead, 8, 22nd August, 1957.

GOVERNMENT OF BRUNEI (N. Borneo). Health OFFICERS required to organise a Health Department in a small municipal area. Duties include anti-malarial and anti-mosquito work, assisting Maternity and Child Welfare Services, school health work, and travelling in rural areas. Candidates must possess qualifications registrable in U.K. ; D.P.H. and/or experience of health work in tropical or semi-tropical territory. Appointment :—

(*a*) From the National Health Service, when candidates may retain superannuation rights up to 6 years and receive gratuity (taxable) of 20% of aggregate of salary after completion of service. Salary scale including inducement pay £1792–£2604 p.a.

(*b*) On contract for 3 years with bonus (taxable) of £150 a year on completion of service. Salary scale including inducement pay £1941–£2830 p.a. Education allowance in both cases of £140 p.a. for up to 2 children between 5 and 18 years educated outside the territory.

Partly furnished quarters at low rental. Free passages for Officer, wife, and up to 3 children under 18 years. No income-tax at present.

Application forms from Director of Recruitment, Colonial Office, London, S.W.1 (quoting No. BCD.117/22/05).

NOTTINGHAMSHIRE COUNTY COUNCIL. Public HEALTH DEPARTMENT. Applications invited from registered medical practitioners (either sex) for either of the following whole-time appointments :—

SENIOR CLINICAL MEDICAL OFFICER. Salary within the scale £1250–£50–£1400–£55–£1510–£65–£1575, subject to a maximum commencing salary of £1400 p.a. Applicants should : (*a*) possess the D.P.H., D.C.H., or comparable qualification ; (*b*) have had at least 3 years experience as whole-time Clinical Medical Officer in the Ante-Natal, Child Welfare and School Health Services of a Local Authority since July, 1948 ; (*c*) have been approved by the Ministry of Education for, and have had substantial experience in, the ascertainment of educationally subnormal children.

ASSISTANT COUNTY MEDICAL OFFICER. Salary £1050–£50–£1200–£55–£1475, or, if holding a Diploma in Public Health, £1200–£55–£1475.

Application forms and conditions of appointment from the County Medical Officer, County Hall, Trent Bridge, Nottingham. Applications by 21st September, 1957.

A. R. DAVIS, Clerk of the County Council.

NATIONAL COAL BOARD. East Midlands Division. Applications are invited from registered medical practitioners for the post of ASSISTANT AREA MEDICAL OFFICER in the No. 5 (Eastwood) and No. 6 (Bestwood) Areas of the Division jointly. The 2 Areas are adjacent and close to Nottingham and the successful applicant will assist their Medical Officers in the supervision of an Industrial Health Service, including the examination of new entrants. The work entails underground visits at collieries. Candidates should have completed hospital and other postgraduate training. Experience in general practice and an interest in the field of preventive or industrial medicine would be an advantage. The commencing salary will be in accordance with qualifications and experience and will be within the range of £1100–£1600 a year. A candidate appointed with a fair amount of postgraduate experience will receive a starting salary of not less than £1200.

Applications, stating age, qualifications, and details of present position and past experience, together with the names of 2 referees, should be sent to the Staff Director, National Coal Board, East Midlands Division, Sherwood Lodge, near Arnold, Nottingham, within 14 days of publication. Envelopes and applications should be marked S.V. 800.

SOUTH CORK BOARD OF PUBLIC ASSISTANCE. Temporary vacancy for REGISTERED JUNIOR RESIDENT MEDICAL OFFICER (St. Finbarr's Hospitals). Remuneration, £502 p.a.

Application forms and particulars may be obtained from the County Manager, Courthouse, Cork, with whom completed applications should be lodged not later than 12 noon on Saturday, 14th September, 1957.

THE REPUBLIC OF THE SUDAN. The Ministry of HEALTH require the services of a qualified CLINICAL PATHOLOGIST for duty at the Stack Medical Research Laboratories, Khartoum. Candidates must hold the Diploma in Clinical Pathology. Appointment will be on a short-term contract for a period of 5 years in the salary range £S1750–£S1975 (Junior Specialists rate). Starting pay will be assessed in accordance with age, experience and qualifications. A cost-of-living allowance is payable and an initial outfit allowance of £S50 on appointment. Annual leave accrues at the rate of 7 days per month; at present no income-tax is payable.

For further information and application forms write to Sudan Embassy, Personnel Section, Cleveland-row, St. James's, London, S.W.1, quoting reference Clinical Pathologist 4/1218. Closing date 30th September, 1957.

KENYA. MEDICAL DEPARTMENT. Pre-registration House Officer posts. Applications are invited for appointments as HOUSE OFFICERS at the King George VI Hospital, Nairobi. Appointment will be on agreement for 1 year in the capacity of House Physician and House Surgeon. Applicants must have completed their National Service or not be liable for it. These posts are recognised for pre-registration training by the University of London and certain other Licensing Bodies, but candidates should confirm from their Licensing Bodies that these posts are acceptable to them for the purposes of the Medical Act, 1950. Consolidated salary £600 a year for first 6 months and £660 a year for second 6 months. Income-tax at local rates. Residents pay approximately £5 a month towards cost of quarters, servants, conservancy, &c., and £12 10s. a month for messing, which is on communal basis. Married quarters are not provided; married candidates may not be accompanied by their wives. Free passages are provided on appointment and on satisfactory completion of internship. 18 days local leave a year is granted. If the selected candidate applies for and obtains appointment to the Medical Branch of Her Majesty's Overseas Service in Kenya at the expiration of his internship, previous service as Resident Medical Officer will count for leave but he will be required to serve the usual probationary period. The period of internship will not count for seniority. There is ample opportunity for clinical experience with systematic teaching, and a large measure of personal responsibility under specialist guidance.

Application forms from Director of Recruitment, Colonial Office, London, S.W.1 (quoting No. BCD.117/7/03).

STAFFORDSHIRE COUNTY COUNCIL. Health Department. Appointment of COUNTY PSYCHIATRIST. Applications are invited from registered medical practitioners with suitable experience to undertake duties involving the day-to-day control of the Mental Health Section of the Department, including mental deficiency and lunacy, together with child guidance arrangements of the School Health Service. Practical experience of child guidance work is desirable and the possession of a Diploma in Psychological Medicine will be considered an advantage. The candidate will be on the staff of the County Medical Officer of Health, to whom he will be responsible. The salary scale will be in accordance with the latest Industrial Court award—i.e., £1520 p.a., rising by annual increments of £50 (1) and £55 (7) to £1955 p.a., and previous similar service may be taken into consideration when deciding the commencing rate. The candidate appointed will be required to provide a car and will be paid allowances in accordance with the County Council's scale. The appointment, which will be terminable by 3 months notice in writing on either side, will also be subject to the provisions of the appropriate Superannuation Acts and Regulations, in which connection the successful candidate will be required to pass a medical examination and produce his or her birth certificate.

Applications, stating age, qualifications, and experience, together with copies of not more than 3 recent testimonials, should reach the County Medical Officer of Health, County Buildings, Stafford, not later than 13th September, 1957. Canvassing, directly or indirectly, will disqualify, and all applicants must state whether, to their knowledge, they are related to any member or senior officer of the County Council.

T. H. EVANS, Clerk of the County Council.

County Buildings, Stafford, 12th August, 1957.

General Practice

For an ***Executive Council post*** *(England and Wales) apply on form* E.C.16A *obtainable from the council. Mark envelope "Vacancy"*

LIVERPOOL. WAVERTREE PARLIAMENTARY DIVISION. Applications invited for a medical practice. Death VACANCY. List of patients approximately 2000. Apply on Form E.C.16A to the undersigned by Friday, 13th September, 1957. J. G. DONCASTER, Clerk, Liverpool Executive Council.

36, Princes-road, Liverpool, 8.

Hospital Services: Non-Medical Appointment

DONCASTER ROYAL INFIRMARY. Doncaster Hospital MANAGEMENT COMMITTEE. Applications are invited from suitably qualified persons for the post of BIOCHEMIST (Basic grade) at above Infirmary. Candidates should possess a Science Degree.

Applications, stating age, education, qualifications, experience and present position, together with the names of 3 referees, should be forwarded to reach the undersigned not later than 16th September, 1957.

Doncaster Royal Infirmary. A. JONES, Group Secretary.

Miscellaneous

British Medical Association. Applications are invited from registered medical practitioners for the post of Medical Director of the Commonwealth Medical Advisory Bureau and the International Medical Advisory Bureau of the British Medical Association at B.M.A. House in London. This post will be vacant on 1st January, 1958, but it is proposed that the successful applicant should join the Association's staff early in December in order that he may be initiated into the work of the Bureaux under the guidance of the retiring Medical Director. The post is regarded as suitable for a retired medical officer of one of the Armed Forces or of the Medical Branch of H.M. Overseas Civil Service, but other candidates are not excluded. The salary of the post is £2000 a year. The age of retirement is 65.

Applications, which should be accompanied by the names of 3 persons to whom reference may be made, must be received not later than 14th September, and should be addressed to the Secretary, BRITISH MEDICAL ASSOCIATION, Tavistock-square, London, W.C.1, from whom further particulars of the appointment may be obtained.

Parke, Davis & Company, Limited, invite applications for the post of Director of Pharmacological Research in their new biological laboratories, which will be completed during the late summer of 1958.

The position is one that requires creative ability and qualities of leadership, and applicants should have high academic qualifications in both physiology and pharmacology; a medical qualification would be an advantage.

The Company has long experience in the field of fundamental research into new drugs and the Director will be expected to initiate and direct work of this kind, in addition to supervising the more routine screening programmes.

There is a generous pension and life assurance plan.

Applications for this post, which carries an appropriately high salary, should be made to the Deputy General Manager, PARKE, DAVIS & COMPANY, LIMITED, Staines-road, Hounslow, Middlesex.

Medical Adviser. The British subsidiary of an internationally known American pharmaceutical company requires a Medical Adviser. This is a new appointment and will be full time. The company's products are all ethical and are recognised by the medical profession to be of a high standard. Very extensive research facilities exist in the U.S. The duties of the Medical Adviser will cover all aspects of the U.K. organisation but the most important functions will be those connected with the clinical investigation of new products and with the medical aspect of questions received on established products. This will entail close liaison with the company's medical staff in the U.S as well as with leading investigators in the U.K. The Medical Adviser should have had several years hospital experience and preferably some acquaintance with clinical research. The age limit is 32–45 years. The starting salary will be not less than £2500; other benefits would depend on qualifications and experience and would be the subject of discussion.

Candidates must provide complete details of their careers and experience. All applications will be treated in the strictest confidence and should be addressed to the Managing Director, Address, No. 327, c/o THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2, marked "Personal and Confidential."

Abbott Laboratories Limited, international manufacturers of fine pharmaceuticals wish to appoint a Medical Director, with the following responsibilities:—

(1) Clinical research—the initiation of clinical trials of new products by the medical profession, the analysis of reports received and the incorporation of the information so received into medical literature.

(2) Professional relations between Abbott and the medical profession including all correspondence of a medical nature.

(3) Consultant to the research and pharmaceutical development departments in the initiation of new products.

(4) Consultant to the sales, advertising, production and quality control departments on all medical matters.

Candidates aged between 35 and 45 years should have, in addition to a medical degree, either (*a*) a postgraduate degree in 1 of the basic sciences, or Membership, with 4–5 years medical practice, or (*b*) at least 3 years hospital appointments with some background of clinical research, plus 4–5 years experience in hospital practice. This strong scientific and medical basis is essential, but a sound commercial sense will also be an important quality in order to effect a smooth coördination of the various aspects of the Company's business. Candidates with some few years of hospital or University teaching experience, especially in the postgraduate field, will have an advantage. The position will call for fairly extensive travel within the United Kingdom. The starting salary will be not less than £2500 p.a.

Candidates are invited to write, in confidence, full details of their career to date, to the Managing Director, ABBOTT LABORATORIES LIMITED, 3, Wadsworth-road, Perivale, Greenford, Middlesex.

Leading South Coast Resort. Lease, equipment and good-will of old-established nursing-home for sale. Midwifery, medical and convalescent. 13 single and 1 double bedroom (all basins h. and c.), 3 bathrooms, 5 w.c.'s. 2 floors only. Esse cooker in kitchen. Central heating. 2 garages with flat over. Lease 16 years at a rental of £612 p.a. inclusive of rates and use of antique furniture in beamed drawing-room. Audited account. Price £3850.—Particulars in confidence from Owners' Agents, HEFFORD & HOLMES, F.A.I., 51, Gildredge-road, Eastbourne (Tel. 7840).

"Pregnancy Diagnosis by the Xenopus Method," 24-hour service. Send specimens of urine and £1 1s. fee. Hæmatology, Biochemistry, Flame Photometry.—WELBECK BIOLOGICAL LABORATORIES, 26, Park-crescent, Portland-place, W.1 (MUSeum 5386–7).

Applicants for posts requiring testimonials copied or duplicated should communicate with MANTON SECRETARIAL SERVICE LTD., 98, Victoria-street, S.W.1 (Phone: VICtoria 0141), who are specialists in this kind of work.

Typewriting and Duplicating. First-class work at moder-ate prices by experienced medical typists. Electric machines.—SYBIL RANG, 21, Heath-street, Hampstead, London, N.W.3 (HAM 5329/0504).

For Sale. Watson's Double Twin X-ray Unit and R.500 Table. Also Cambridge suitcase portable Electrocardiograph (Einthoven pattern) in good working order.—Seen by arrangement with Supplies Officer, Tottenham Group Hospital Management Committee, The Green, N.15.

Microscopes. Immediately available from Stock. Largest selection of all types. Terms if required.—WALLACE HEATON LTD., 127, New Bond-street, W.1.

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'Hydroderm'

TRADE MARK

TOPICAL OINTMENT

HYDROCORTISONE, NEOMYCIN AND BACITRACIN IN AN EMOLLIENT BASE

Many conditions which have previously failed to respond to either hydrocortisone or antibiotics alone, do so when these substances are used in combination.[1]

'HYDRODERM' is indicated in allergic skin lesions such as:

seborrhoeic dermatitis
infantile eczema ***adult eczema***
insect bites ***otitis externa***
contact dermatitis ***intertrigo***
pruritus with lichenification

and similar eczematoid conditions especially when secondary infection is present

[1] "*Advances in the Treatment of Skin Diseases*" "*The Practitioner*", October 1955

for effective and safe steroid/antibiotic treatment for dermatoses

If you are not already aware of the advantages of 'Hydroderm' (hydrocortisone, neomycin and bacitracin, in an emollient base), please ask for literature and professional package for clinical trial.

MSD

MERCK SHARP & DOHME LIMITED, HODDESDON, HERTS

Adelphane

(0.1 mg. Serpasil + 10 mg. Nepresol)

FOR MILD AND MODERATE

HYPERTENSION

IN GENERAL PRACTICE

A combination of Serpasil (reserpine CIBA) and Nepresol (1,4 dihydrazinophthazaline sulphate) for those hypertensive patients not showing adequate response to Serpasil alone.

The Administration of Adelphane will, in many cases, prove an effective alternative to hospital treatment with ganglion-blocking agents.

Available in bottles of 25, 100 and 500.

C I B A

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